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HIGH BLOOD PRESSURE AND LONGEVITY *

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When the late Dr. William Stanton of Philadelphia invented his mercury blood pressure instrument, I immediately began to use it with the same zeal and curiosity with which, presumably, the contemporaries of Laënnec used the crude wooden stethoscope of his invention. Just as they heard things that must have seemed terribly ominous to them—so well brought out in the poem by Oliver Wendell Holmes—so I often saw things on the manometer that sent a chill into my heart.[1] When I observed a systolic blood pressure of 180 or 200 or higher, I became, not at all in keeping with my innate optimism, depressed as to the patient's future prospects. I was sure that individuals with such blood pressures were doomed. But as my years of practice lengthened I began to realize that there were worse things than high blood pressure. There were patients who survived for an unexpectedly long time and enjoyed good health and undiminished vigor for years. That was a valuable lesson, a lesson similar to the one I had learned with regard to insanity: I had found, contrary to received teachings, that many of the worst cases of insanity recovered completely.

But there were other patients with high blood pressure who were less fortunate; who died within a few years after their hypertension was first discovered. This is an experience that all medical practitioners have had.

On the whole, high blood pressure is no blessing. Insurance statistics show that the mortality among cases of high blood pressure far exceeds the normal death rate. This is illustrated in tables 1 and 2.

Mr. J. Mills, assistant superintendent of the bureau of statistics of the Equitable Life Assurance Society, has kindly supplied me with recent figures that confirm what Hunter had previously found in a larger series of cases. Mr. Mills says that all persons to whom policies were issued from 1909 to 1927 for which the insured was charged an extra premium were observed to their 1928 policy anniversaries. Table 4 shows the observed blood pressures in these substandard risks. The deaths expected on the basis of his experience with all standard lives over the same period were calculated and compared with the actual deaths observed in this group with the results given in table 5. After a small number of lives had been eliminated for lack of data on the diastolic pressure, the experience was analyzed in three sections according to diastolic pressure (table 6).

It is evident, therefore, that high blood pressure is not conducive to longevity. Nevertheless, as is shown by my own experience and by that of many others, high blood pressure is compatible with longevity. The difficulty is that it is not always easy to tell to which class, favorable or unfavorable, a given patient belongs. I shall try farther on to point out the ways and means of making that important differentiation or at least of attempting to make it, because it is not always possible to make it absolutely.

High blood pressure or hypertension is not a disease—like disturbances of the basal metabolic rate, like fever, it is a symptom of something more fundamental. To the laity, however, it is a definite disease, and many a patient comes to his physician saying "Doctor, I've got blood pressure," as he might say "Doctor, I've got malaria."

In estimating the blood pressure one must not take any single reading as the absolute figure. This is especially true in the case of patients paying their first visit to the doctor.[2] Under excitement and fear, the systolic blood pressure may be raised as much as 40 mm. It it well to take several readings while conversing with the patient on indifferent matters. If the pressure is high, it is usually wiser not to say anything until the pressure has been checked at a subsequent visit. One should, however, make a note of cases in which the blood pressure rises unduly from excitement—such instability may presage some vascular trouble in later life.

Naturally it is important to be sure of one's instrument. For office practice it is well to have both an aneroid and a mercury manometer to compare the one with the other. It is also advisable to take the blood pressure in both arms. Not infrequently it varies on account of sclerotic processes, cervical rib, or aneurysm. The blood pressure on the weaker side would then give a false impression.

It is hardly necessary nowadays to advise the taking of the diastolic pressure as well as the systolic. The majority of physicians who take blood pressures at all estimate both. The diastolic pressure is of great significance; in fact, it is more significant from the point of view of prognosis than is the systolic. It indicates the steady irreducible minimum load against which the heart is compelled to work, and few hearts can endure long a constantly high diastolic resistance; hence to that extent at least the diastolic pressure gives a clue to the patient's prospects.

* Address in medicine read before the State Medical Society of Wisconsin, Milwaukee, Sept. 11, 1930. The substance of this paper, together with a consideration of low blood pressure, was presented before the clinical congress of the Connecticut State Medical Society, New Haven, Sept. 18, 1930.

1. A history of the development of "blood pressure" has been written by Brim: Medical Life, February, 1930.

2. Heywood Broun, the columnist (Philadelphia Record, Sept. 24, 1930), states that one doctor found his blood pressure to be 100 and told him it was too low. He immediately went across town to another physician, who found it was 145 and said it was a little too high.

Hypertension, while occasionally transitory, is usually a permanent and progressive condition. More or less transitory states of high blood pressure are due to emotion, to physical exertion, to prostatic hypertrophy and rarely to suprarenal tumors. Such hypertension usually disappears with the removal of the cause. I shall not dwell further on this type.

Permanent hypertension is not a unitary condition but is due to a variety of causes which it is important to know, as the cause to a large extent determines the prognosis, the longevity.

TABLE 1.—*Risks Rejected, for High Systolic Blood Pressure Only, by Northwestern Mutual Life Insurance Company* *

Number of Mm. Over Average Systolic Blood Pressure for Age	Extra Mortality
+10 to +24	60%
+25 to +34	100%
+35 to +49	140%

* The statistics in tables 1, 2 and 3 are taken from Blood Pressure: What Affects It? by Arthur Hunter, chief actuary, New York Life Insurance Company, New York.

TABLE 2.—*Risks Accepted, with an Additional Premium for High Systolic Blood Pressure Only, by New York Life Insurance Company*

Number of Mm. Over Average Systolic Blood Pressure for Age	Extra Mortality
+10 to +25	46%
+26 to +35	88%
+36 to +50	148%

TABLE 3.—*Average Blood Pressure of Men in the United States and Canada*

Age	Systolic	Diastolic	Pulse Pressure
20	120	80	40
25	122	81	41
30	124	82	41
35	124	83	41
40	126	84	42
45	128	85	43
50	130	86	44
55	132	87	45
60	135	89	46

CLASSIFICATION OF HYPERTENSION

The most important clinical types are: (1) accidental; (2) nephritic; (3) arteriosclerotic; (4) essential.

1. *Accidental Hypertension.*—This accompanies aortic insufficiency, heart block and some cases of hyperthyroidism and is more or less normal in those conditions.

2. *Nephritic Hypertension.*—In this the hypertension is intimately connected with disease of the kidney and is apparently secondary to it. It begins rather early in life, about the age of 30, and is more common in the male than in the female sex. The peripheral arteries are thick and rigid; the heart in the later stages becomes greatly enlarged; both the systolic and the diastolic pressures are high; the blood usually shows nitrogen retention. Death occurs from intercurrent disease, from cardiac decompensation, from uremia or from acute pericarditis.

3. *Arteriosclerotic Hypertension.*—In many respects this is similar to the preceding, but in the earlier stages at least there is no evidence of renal involvement, although such involvement may possibly exist. The condition seems to start as a spastic arteriolar process which eventually passes into the stage of sclerosis. The systolic pressure is high; likewise the diastolic. Eye-ground changes may or may not be present. Kidney function may be normal and the blood may not show any nitrogen retention. In these respects the condition differs from the preceding—the nephritic hypertension. Symptoms may be absent for a long time, the patients enjoying the best of health with a systolic pressure of from 200 to 230 and a diastolic pressure of from 115 to 145. Headache, disturbances of vision and various severe encephalopathies occur in the later stages—monoplegia, hemiplegia, aphasia and convulsions (epilepsia tarda [3]). Death may be due to apoplexy, cardiac decompensation, coronary occlusion or uremia.

4. *Essential Hypertension.*—This is the most common, the most important, the most obscure. I shall outline briefly its principal features:

(*a*) Essential hypertension occurs in both sexes about the midperiod of life.

(*b*) It is not connected with primary heart or kidney disease.

(*c*) The palpable blood vessels are soft, although the temporals may be tortuous and the brachials visibly pulsating.

(*d*) The eye grounds show nothing significant.

(*e*) The blood chemistry and the renal function tests are within normal limits.

(*f*) Symptoms may be entirely in abeyance, although the systolic pressure may be considerably above 200.

TABLE 4.—*Relation of Age to Systolic Blood Pressure*

Age at Issue of Policy	Systolic Blood Pressure
15–29	145 mm. or more
30–44	150 mm. or more
45–53	155 mm. or more
54–65	160 mm. or more

TABLE 5.—*Actual and Expected Deaths*

Age at Issue	Actual Deaths	Expected Deaths	Ratio of Actual to Expected
15–39	32	18.50	173% ± 20
40–49	74	34.08	217% ± 17
50 and over	96	54.54	176% ± 12
All	202	107.12	189% ± 9

TABLE 6.—*Deaths According to Diastolic Pressure*

Diastolic Blood Pressure	Actual Deaths	Expected Deaths	Ratio of Actual to Expected
Under 100 mm.	104	63.88	163% ± 11
100–105 mm.	43	20.35	211% ± 21
106 mm. or over	33	9.86	335% ± 39

(*g*) Essential hypertension is compatible with long life and with full mental and physical vigor. For this reason it is often discovered accidentally; as, for example, during life insurance examinations, the individual applying because he considers himself a perfect risk.

(*h*) When symptoms arise they are usually either cardiac or cerebral—shortness of breath, cardiac pain, vertigo, headache or encephalopathies similar to those described under arteriosclerotic hypertension.

ESSENTIAL HYPERTENSION

Essential hypertension is attracting as much interest at the present time as any other clinical condition or disease. It goes by many names: vascular, arterial and

3. Riesman, David; and Fitz-Hugh, Thomas, Jr.: Ann. Int. Med. **1**: 273 (Nov.) 1927.

benign hypertension, hypertensive cardiovascular disease or hyperpiesia, a name given to it by Sir Clifford Allbutt.

Little is known about the causes of essential hypertension, which explains the multiplicity of theories offered for its explanation.

Some attribute essential hypertension to a primary disease of the kidney, to a renal arteriolitis, and consider it, therefore, a form of nephritic hypertension. In favor of this view is the frequency with which renal arteriolitis is found at autopsy (in seventy-two out of seventy-two cases studied by Fishberg [4]).

I am, however, disinclined to accept this interpretation, for during life patients with essential hypertension, as already stated, show neither clinical nor chemical signs of renal disease. They rarely die a renal death; they live much longer than patients with the ordinary types of renal hypertension. I believe one would not go far wrong in interpreting the arteriolitis as a consequence of the high pressure that is constantly hammering against the small blood vessels. The arteriolar thickening on that basis is a protective mechanism through the medium of which the delicate glomerular vessels are guarded against the excessive pressure to which they would otherwise be subjected.

To assert that essential hypertension is not primarily a renal disease does not bring one much nearer to an understanding of it. Its pathogenesis is still one of the unsolved problems of medicine. However, essential hypertension has all the earmarks of being dependent on a vasoconstriction, a functional change affecting especially the arterioles, the precapillary vessels, which for their size have the largest amount of muscular tissue in their walls. It may be that this vasoconstriction is more pronounced in the renal vessels than elsewhere. If what maintains the normal vascular tone were understood, the cause of the heightened tone called hypertension might be known better.

As I have said, nephritic hypertension is usually considered a compensatory phenomenon, a necessary consequence of the resistance offered to the blood stream by the diseased arterioles and glomeruli. Urinary secretion depending on the "head" of blood pressure in the renal circulation and not on secretory nerves, it is necessary for the general pressure to be raised if the blood is to be forced through a constricted vascular territory.

Dr. Major of Kansas City believes that the hypothetic pressor substance in hypertension is guanidine or a derivative of it, a view that has been supported by Dale and Dixon and others but still lacks adequate confirmation. The same thing applies to hypercholesterolemia, considered by Westphal as the cause of hypertension.

The suggestion has been made that hypertension might be correlated with increased viscosity of the blood, but against this are several facts.

1. No noteworthy change in the viscosity has been demonstrated in essential hypertension.

2. Some diseases definitely associated with increased viscosity do not of necessity exhibit marked hypertension. This is true of polycythemia rubra, in which, though the viscosity is greatly increased, the blood pressure is usually not high. If there is any marked elevation, it seems to be related to the age of the patient or to accidental complications.

4. Fishberg, A. M.: Hypertension and Nephritis, Philadelphia, Lea & Febiger, 1930.

Bordley and Baker [5] have shown by careful anatomic studies the frequent association of lesions of the arterioles in the medulla oblongata with essential hypertension, and they look on this lesion as the immediate cause of the high blood pressure. In their view, the hypertension is necessary if the medulla is to be supplied with blood. Here, too, the matter of cause and effect, of chicken and egg, is not so simple. They themselves admit that the sclerotic changes in the medullary vessels might be secondary to the high blood pressure—a protective mechanism against it. But if this were the sequence of events, then all the other arterioles in the body should show such protective changes, which is by no means the case.

The hypertension of the kidney of pregnancy and of eclampsia is not fully understood. It may disappear after the pregnancy, leaving the patient perfectly well with normal kidney function, and subsequent pregnancies may proceed without mishap. In other cases the hypertension persists with increasing evidence of renal involvement. One can explain the recovery only by assuming that the hypertension was due to an arteriolar spasm. Whether this is primary in the kidney or whether it is a general process is a matter of doubt. In patients who do not recover, the disease of the kidney evidently plays an important rôle in the hypertension. But even here one cannot rule out entirely a primary spasm with secondary renal involvement.

A rather attractive hypothesis is based on the known action of the depressor nerve in the lower animals. This is an afferent nerve having its peripheral terminations in the wall of the aortic arch. Impulses arising in the terminals are conveyed to the vasomotor center in the medulla and cause a reflex vasomotor relaxation. Its function seems to come in play when the arterial pressure is raised above a certain level. The existence of an analogous nerve in man is predicated by the majority of physiologists. Granted there is disease of the aortic wall involving the endings of the depressor nerve, the signal for reduction of blood pressure would no longer be conveyed to the regulatory center in the medulla.

On the clinical side there are certain features that have a bearing on the production of essential hypertension.

1. For example, the majority of patients with essential hypertension are overweight. On this fact all insurance actuaries are agreed.[6]

2. Another common denominator is a history of stress and strain throughout life. That phrase includes many things, some not always remembered in the investigation of a given case—genteel poverty, the grinding need for maintaining what the French call a façade, prolonged worry, overweaning ambition especially if ungratified, irregular eating, and insufficient sleep. I do not believe that hard work per se is harmful unless it leads to irregular modes of life or is attended by repeated failures.

Race is an important factor, chiefly in that it determines the habits of life. To some extent, as in the Russian Jewish people, there is some innate tendency to cardiovascular disease, as shown in the frequency of thrombo-angiitis among them.

It is a clinically important fact that essential hypertension not infrequently sets in at the climacteric period in women.

5. Bordley, James III, and Baker, B. M., Jr.: Bull. Johns Hopkins Hosp. **39**: 239 (Oct.) 1926.

6. Hunter: Blood Pressure: What Affects It? Dublin, L. I.; Fisk, E. L., and Kopf, E. W.: Am. J. M. Sc. **170**: 570 (Oct.) 1925.

A high protein diet is by many held responsible for hypertension, but neither the insurance statistics already quoted nor the clinical studies of Strouse[7] or of Mosenthal[8] bear out this assumption. Furthermore, Stefansson, the arctic explorer, lived for a year on a meat diet without any rise in his blood pressure.

F. M. Allen, as is well known, maintains that an excessive consumption of sodium chloride is responsible for hypertension. Other investigators have not been able to confirm his views.

Gout has been considered a factor by many, especially by English writers; but the type of gout, the so-called latent gout, that comes in question here is a vague thing. It is true that many cases of hypertension show high uric acid figures in the blood. Whether this is a cause or a consequence, or indeed whether it is important at all, is still a matter *sub judice*.

Two other theories are in the field—they always appear when the examiner is puzzled—focal infection and intestinal autointoxication. Medical practice and teaching would be decidedly uncomfortable if they did not have these two explanations to fall back on.

That focal infection can cause disease at a distance is now an axiom. It can lead to nephritis and by that token to hypertension. That it can cause hypertension without the mediation of the kidney is totally unproved. A number of investigations have been made by the large insurance companies on that score, attention being particularly given to the teeth and to the tonsils. The statistics show that there was no connection between hypertension and focal infection through these two channels. That does not, however, entirely dispose of the matter; further studies are necessary, especially by family physicians, who, following the suggestion of Mackenzie, should keep careful records of their patients over periods of years.

Theoretically, intestinal autointoxication is an entirely reasonable cause. It is conceivable that toxic products may result in the intestines from bacterial or enzymatic decomposition of protein. In fact, many protein split products are definitely poisonous. Normally such toxic substances are detoxicated in the liver. A disturbance of hepatic function might permit them to go through into the general circulation without previous destruction. But the majority of diseases of the liver, if not complicated, are not associated with hypertension. The theory is attractive but unproved.

The fact that essential hypertension frequently arises in women about the time of the menopause suggests the thought that in such circumstances at least an endocrine factor is operative. Not much is known about the action of the gonads on the circulation. There is no inherent reason against an endocrine origin of hypertension, but the theory has not yet passed the stage of speculation.

One other factor needs to be considered, and that is heredity. If one takes careful family histories and especially if one has opportunities of observing entire families, perhaps into the second generation, one will note that essential hypertension often affects several members of a given family. The condition is of course not inherited but the tendency, the anlage, is hereditary.[9]

I shall now relate a few cases illustrating the compatibility of hypertension with longevity.

CASE 1.—The most interesting of all my cases is that of Mrs. H. D., aged 97, who came under my care more than twenty-five years ago. Throughout all these years her systolic blood pressure has ranged from 220 to 274, the diastolic pressure being always about 100. Last spring she had two attacks of bronchopneumonia without change in blood pressure. At present she is quite well physically, though at times a little confused mentally. She goes out nearly every day, although her blood pressure, September 7, was 274 systolic and 100 diastolic. There is no edema of the feet, and the urine is as normal as one can expect in a woman of her years. The heart is not materially enlarged; only lately a soft systolic murmur has appeared at the apex.

CASE 2.—Mrs. J. H., a physician's mother, aged 63, came under my observation in 1916; at that time she had a blood pressure of 202 systolic and 118 diastolic. She complained of nothing but pain in one knee. Her blood pressure has ranged from 188 to 234 systolic and from 80 to 120 diastolic. During the last few years a little enlargement of the heart has become evident; electrocardiographic tracings show marked left axis deviation. The urine contains a trace of albumin and a few hyaline casts. In all these fourteen years, which must have been preceded by a number of years of undiscovered hypertension, she has had no complaints except chronic arthritis of the knee.

CASE 3.—S. M., a man, who has been under observation for fourteen years, had a systolic blood pressure of 166 when first seen. Since then it has gradually risen, varying from 200 to 240 systolic and from 80 to 120 diastolic. The urine contains traces of albumin and inconstantly minute amounts of sugar. The patient has had no complaints and is as active in business as ever.

CASE 4.—Mrs. B., a widow, aged 56, has been under observation for seven years but knows that she has had high blood pressure for a much longer time. The systolic pressure ranges from 200 to 220 and the diastolic from 100 to 115. Aside from corneal ulcers, recurring at long intervals, and increasing deafness, which is hereditary in the family, the patient has enjoyed the best of health. In fact, she is the most socially active woman of my acquaintance and has just gone to Europe for a gay winter in Paris.

I shall cite one more case because it shows that the arteriosclerotic form of hypertension is also compatible with fairly long life:

CASE 5.—S., a lawyer, aged 69, has been under my care for seventeen years. His systolic blood pressure was originally 175; it has risen slowly, so that it now ranges between 200 and 208, the diastolic ranging from 110 to 112. His arteries are leathery; the heart is a little enlarged. The urine contains a trace of albumin and an occasional cast. Functional urinary tests and the eyegrounds are normal. Of late years, signs of prostatic hypertrophy have appeared. The man's general health is good, though at times he is a little short of breath but never for long. All in all, despite years of high blood pressure and very stiff arteries, it looks as if he would live beyond three score and ten.

These cases, favorable as they are, do not alter the fundamental fact that high blood pressure is not a bodily virtue. It is necessary to pick out the good cases from the bad so that one may be able to say to a given patient whether he has a chance to live long or whether an early death awaits him and that he had better make his will. I believe that in teaching not enough attention has been paid to the art of prognosis. It is by the skill in this art that the public often judges the medical profession. For this reason I am going to indicate some of the means the physician has of foretelling the future of the hypertensive individual.

One must always correlate the blood pressure with the age of the patient. Old persons bear high blood pressure better than younger ones. There is a form

7. Strouse, Solomon; and Kelman, S. R.: Protein Feeding and High Blood Pressure, Arch. Int. Med. **31**: 151 (Feb.) 1923.
8. Mosenthal, in Nelson's Loose-Leaf Medicine **4**: 508, 1922.
9. Barach, J. H.: Constitutional Factors in Hypertensive Diseases, J. A. M. A. **91**: 1511-1514 (Nov. 17) 1928.

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of juvenile hypertension that has not been sufficiently studied, but I have not time to discuss it here.

The height of the systolic pressure is not a reliable criterion unless it is excessively high. The patient's whole constitution must be weighed in the balance. This is the rock on which so many insurance examiners founder. They concentrate their observations too much on the manometer readings. I can illustrate this by the report of a case related to me by an examiner for one of the large national companies.

A man applied for a twenty-five thousand dollar life insurance policy; in accordance with the company's ruling, he had to be examined by two physicians. Both found the blood pressure to be 145 and the company gave the man a standard policy on which he paid one premium. After leaving the office of the first company he went directly to that of another to get an equal amount of insurance. The examining physician there found his blood pressure to be 150 or a little over and rejected him. Three months later the man died of apoplexy on his way to Atlantic City.

More important than the systolic is the diastolic pressure. A high diastolic pressure is a bad prognostic sign. This is illustrated in the report of Lian, Broca and Clément,[10] who state that, of seventy-seven persons with a diastolic pressure of 135 observed during the five years 1914 to 1919, only two were living at the end of the period.

Heredity to a great extent determines longevity. Longevity as well as its opposite is largely an inherited trait. Not enough attention has been paid to this by geneticists, but it is as striking a familial trait as the color of the eyes, the conformation of the head, or any other physical feature. Therefore, when I see a hypertensive patient who exhibits nothing else of moment save the hypertension, my prognosis is favorably influenced if he comes of a long-lived family.

Much can be learned about a patient's general prospects by studying his temper and the influences that play on it. Irascibility is not conducive to longevity in the face of hypertension. I believe that the more fully a physician explains these matters to his patients, the better will be their cooperation.

Changes in the eyegrounds are among the earliest and most important concomitants of hypertension. As pointed out by Wagener,[11] the first visible change in the retinal vessels is definitely spastic in nature. Later on, edema and hemorrhage appear. Such changes always darken the prognosis, although no definite period of survival can be given.

From the physical standpoint the prognosis is influenced by the size of the heart, the state of the arteries, the kidney function, the eyegrounds, as already mentioned, and the coexistence of diabetes. I need not go into details as to these points, as they are almost self-explanatory.

In table 7 are gathered a series of cases of essential hypertension chiefly from my office practice. Though covering the same period there are nearly twice as many women as men—fifty-one of the latter and ninety-one of the former. There is little difference between the maximum systolic and maximum diastolic and the minimum systolic and minimum diastolic in the two sexes.

The patients represented by the table have been under my observation for periods ranging from a few months up to seventeen years. All were living when last heard from and those whom I have seen from time to time have not shown any noteworthy untoward symptoms.

In the table are not included a number of cases of juvenile hypertension, in patients under 30, as there was definite evidence in them of renal involvement. That, in fact, was the case in the majority of young persons whose systolic and diastolic pressures were materially raised. The conclusion is probably warranted that a high systolic blood pressure in a young adult is not essential hypertension but is nephritic hypertension.

TABLE 7.—*Ratio of Essential Hypertension in Men and in Women*

Age Group	Systolic		Diastolic		Number of Cases
	Average Maximum	Average Minimum	Average Maximum	Average Minimum	
Men					
40-50	244	205	127	115	5
50-60	241	192	116	92	17
60-70	228	182	110	94	23
70-80	229	191	116	88	6
Average	235	193	117	97	51
Women					
Under 30	220	170	140	136	1
30-40	224	192	130	110	2
40-50	230	188	119	104	20
50-60	226	187	115	93	37
60-70	233	186	109	92	25
70-80	235	189	96	83	6
Average	233	187	118	103	91

TREATMENT

I shall limit my remarks on this phase of the subject to the treatment of essential hypertension. In the main, the methods here outlined are applicable to all forms of hypertension, whatever their origin.

Preeminent in the treatment is the psychologic approach—an understanding of the patient's frame of mind. It is absolutely necessary to quiet his fears, to convince him that hypertension is no sword of Damocles threatening his life at every moment. Countless experiences have demonstrated to what extent anxiety can raise both the normal and the more touchy abnormal blood pressure.

While as a general rule it is unwise to retail other cases to one's patients, only good can come from citing examples of long-lived hypertension to an apprehensive patient.

Whatever is revealed by the history and by the general physical examination that might be of importance and is correctable should, if possible, be corrected. Such conditions are chronic constipation, infected teeth and other sites of focal infection.

No measure is as useful and generally applicable as rest, either complete or partial. The mere elimination of physical exertion, combined with regulation of the diet, suffices to lower the pressure; with rest in bed and with proper guarding from environmental disturbances the patient attains a greater peace of mind. A week is usually sufficient to produce whatever effect is obtainable from rest in bed. Naturally if the symptoms are fairly severe and indicate beginning cardiac fatigue, then the rest must be prolonged.

The permissible work must be made to fit as nearly as possible the patient's mental and physical status. Rarely is it necessary to pull him peremptorily out of his business. That tends to make him a confirmed hypochondriac and may indeed shorten his life. Usually it suffices to make him shorten his hours of work—he goes to business later and comes home to rest for an

10. Lian, C.; Broca, R., and Clément, J.: Presse méd. **29**: 743 (Sept. 17) 1921.
11. Wagener, H. P.: Ann. Int. Med. **4**: 222 (Sept.) 1930.

hour or an hour and a half after lunch or before his dinner. He must have an adequate amount of sleep, and that precludes high-stake bridge and poker.

A vacation is an excellent symptomatic remedy. A winter vacation is often as great a necessity as one in the summer. One must, of course, cut his coat according to his cloth. It is useless to prescribe an expensive regimen to a patient who cannot afford it. Nevertheless, it is a good thing to have an ideal in mind.

Exercise.—Exercise within reason is a good tonic and takes the patient's mind off his problems but, like everything else, it can be overdone. One must individualize and must apportion the amount of physical exertion to the patient's age, previous mode of life, range of freedom and, especially, his response.

Those whose passion is golf often overplay. I seldom permit even on a summer vacation a daily game. There should be a day of rest intercalated and on the play days the exertion should not be such as to bring the patient home tired. Nor should the overheated, sweating player shower off with cold water as soon as the game is over. There are players not only at golf but also at other competitive sports to whom winning is so vital that in a hotly contested game they work themselves up to the highest pitch. Such a result is not at all conducive to reducing high blood pressure.

Diet.—It is difficult to find any constant dietetic error in patients with hypertension except that of overeating. Simplicity in quality is not always simplicity in quantity. I remember well an experience at one of the medical congresses in Washington. A distinguished foreign professor and his wife were eating breakfast with me at the Willard Hotel. I had ordered the usual American breakfast of fruit, cereal, an egg, rolls and coffee. Perhaps I had an order of hot cakes as well. But of all of these things I ate moderately. My guest, the distinguished professor, ordered bananas, rolls and coffee. When he saw the number of dishes that surrounded me he thought I was an inordinate eater and commented on my apparently voracious appetite; but I watched him also and found that he ate at least half a dozen bananas and an equal number of rolls. Because he ate only of two articles he considered himself abstemious. Needless to say, he was possibly 50 or 60 pounds overweight and has long since died.

The fact that the vegetarian races of the East for the most part have a low blood pressure might suggest that our habits as to meat eating play a rôle but the evidence is not sufficient. I have already referred to the famous experiment of Stefansson.

All in all, it is not possible to write down any specific antihypertension diet, although there are a few points on which there is general agreement:

1. As already indicated, quantity is more important than quality. All meals should be light, especially the evening meal.

2. With a normal blood chemistry and a normal urine it is unnecessary to exclude meat entirely. I believe many patients have been dieted too strictly in this respect. A small portion of meat once a day is permissible.

3. The obese should cut down fats and starches and make up the deficit in bulk with vegetables.

Salt restriction: F. M. Allen, as is well known, claims to have obtained good results from a salt free diet; that is, a diet under which the salt excretion does not exceed 0.5 Gm. per day. Many have tried the method without getting satisfactory results. Allen has countered by saying that the exact method advocated by him had not been employed. Without being convinced that sodium chloride is the cause of hypertension or an important factor in it, I am nevertheless in the habit of advising my patients to reduce the salt intake to a minimum.

Alcohol: The hypertensive patient is, on the whole, best off without alcohol, although when he is abroad where the drinking of water is looked on as an anachronism, he may take a light wine with impunity.

Tobacco: It is my practice to restrict the use of tobacco or to forbid it entirely in hypertensive patients who have had cardiac pain. In other persons tobacco in moderation, a pipe or a good cigar, is a wonderful sedative to frayed nerves. However, I know this only vicariously.

Drugs: There is at present no drug that will reduce high blood pressure to the normal permanently. The nitrites almost never fail if given in adequate doses in reducing blood pressure, but the reduction is not permanent. Nevertheless, there are times when even a temporary reduction is an advantage, such as when oppression of the chest, headache and vertigo manifest themselves or when even without symptoms the blood pressure suddenly rises to a rather dizzy height.

Of the nitrites, I have found glyceryl trinitrate and erythrol tetranitrate the most valuable; sodium nitrite has not given me equally good results. Amyl nitrite is active but disagreeable and had best be used in the presence of some special emergency.

Potassium thiocyanate has recently been advocated in the treatment of hypertension. The dose is 0.1 Gm. (1½ grains) three times a day for five days and twice daily for a week, then once daily. Certain proprietary thiocyanate compounds are now on the market. The results are variable; occasionally they are very satisfactory.

Stieglitz,[12] an excellent student of hypertension, has recently advocated the use of bismuth subnitrate on the theory that this substance in the intestine gives off nitrite, which, like glyceryl trinitrate and other nitrites, tends to relax the blood vessels.

Bleeding.—When definite symptoms are present, and especially if there is an encephalopathy, nothing acts so quickly and so well as a fairly large venesection—from 500 to 750 cc. may be taken in a florid individual. I am in the habit, when bleeding a patient, to keep the blood pressure instrument on the other arm and to stop when the systolic pressure has fallen to 180 mm. The pressure often continues to drop afterward.

There are cases of severe hypertension that are not markedly relieved by venesection; in some of them I have found leeching from the mastoid process an almost sovereign remedy. Three leeches on each side are usually sufficient. It is sometimes difficult to obtain Swedish leeches in the ordinary pharmacies, but those in the foreign quarters of large cities usually carry them.

The iodides have long been employed in hypertension. In syphilitic cases they are undoubtedly useful, but they may be of value in cases that are not syphilitic. The ordinary potassium iodide solution has disadvantages: it is unpalatable, causes acne, and cannot be carried about. For these reasons I prefer one of the imported preparations either in capsule or in tablet form.

Electric Therapy.—The high frequency current seems to have the power of lowering blood pressure. My experience has been that the result is not permanent.

12. Stieglitz, E. J.: Bismuth Subnitrate in Treatment of Arterial Hypertension, J. A. M. A. **95**:842 (Sept. 20) 1930.

There are, however, electrotherapeutists who claim more lasting results from the treatment than I have seen.

COMMENT

I cannot conclude this way without giving expression to some reflections that have forced themselves on me during the preparation of this paper.

Hypertension is not only a disease of the individual—it is a disease of American life. It extends to all our communal doings; it is reflected in the tension under which every individual in America lives.

What are the causes of this American disease? They are, I believe, connected with our striving for wealth. We have created false standards, have deprived ourselves of peace and leisure, and have lost the art of living wisely. We have had abundant material success, but have we not paid too dearly for it? It may be difficult to persuade the average American that the price has been too high, for he is still convinced that the civilization that he has created on this continent is the best in the world. There might be nothing wrong with such a sentiment if it did not blind us to some virtues still remaining in the Old World. Winston Churchill, the English statesman, accuses us of thinking that when we left Europe we took with us all the virtues and left all the vices behind. No doubt we took many virtues, but it must be admitted by every candid person that we have evolved a few vices of our own.

Unlike the European, who, when he has enough for a comfortable living, retires to a life of leisure, the American, when he becomes rich, wants to become richer. He works hard and gambles with his savings. If he chances to be successful, he has in many instances shortened his expectation of life; he has surely done so if his ventures have ended disastrously.

It might be contended that, notwithstanding our way of living, the span of life has been greatly lengthened—nearly fifteen years since 1880. True enough; but when we come to analyze the relevant figures we find that the apparent prolongation of life to the age of 56 [13] is due primarily to the saving of child life and not to the saving of adult life. Statistics clearly show that the span of life after the age of 45 has not been lengthened. It is highly probable that it has been shortened, and that is the price of success.

I have just been abroad and have found that in the smallest as well as in the largest cities the majority of the shops are closed from 12 until 2. These two hours at noon have a tremendous recreative value. The custom explains why in Europe one sees few cafeterias and automats in which our people here snatch a hasty, noisome meal. Where they exist they are pointed to as an illustration of the dreaded American invasion.

The European sits down leisurely and over his lunch discusses the problems of politics and world affairs for the discussion of which the American finds so little opportunity, either at his meals or at other times. How many of us sit down with any frequency to thrash out the important problems of municipal finance, of national policies, of the League of Nations, of the World Court, matters in which every intelligent man or woman should take a deep personal interest. Yes, perhaps at a dinner party the discussion may turn on the Great War or on the personality of our presidents or on our two great national philosophers—John Dewey and Will Rogers. Often, however, prohibition is the sole topic of conversation.

In a manufacturing town in England, 86 per cent of the voting population in a recent election cast their ballots. Deducting those who for one reason or another were unable to go to the polls, that represents practically 100 per cent of the voters. That, to my mind, is an expression of the interest in public affairs promoted by a well utilized leisure.

I have spoken of the treatment of hypertension in the individual; the treatment of the condition in the mass is beyond any man's power but by having before one the causes, it may be that in time a remedy for most of them may be found. I have given the causes as they have occurred to me. What remedies are there in the offing?

In the first place we must have a different standard, different ideals, more striving for contentment and a lessening of competition in the chase after riches. We must cultivate a spirit of leisure, making the lunch hour in public or in private a real rest hour, making sport not a passion conditioned on a desire to win but a recreation, pure and simple. As has recently been said by George Duhamel, a distinguished writer who has just received the Grand Prize of the French Academy, "what America needs is more loafers or, rather, dreamers if she wants to be saved from herself."

These ideals cannot be created in an adult population; the seeds of them must be sown in the child, in the home and in the school. If we once succeed in adopting from a by no means effete Europe that placidity, that tranquillity which is the aroma and the crown of life, then this country will have what it can and should have—the ideal civilization.

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13. Dr. Dublin of the Metropolitan Life Insurance Company, in a personal communication, says it is now 59 years.

CAUSES OF FAILURE IN THE TREATMENT OF VARICOSE VEINS *

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Unprecedented interest is shown both by the medical profession and by the public in the subject of varicose veins. A few years ago it was necessary to advocate and argue the cause of injection treatment, particularly before surgeons. Today one may say that this form of treatment has become an accepted, standard procedure, widely used by the general practitioner and favored by the progressive surgeon, who is only too glad to relinquish or reduce the number of extensive operative procedures, with a disconcerting percentage of recurrences. Today it is no longer necessary to fight for the principle of injection treatment, but rather to emphasize the possible errors and mistakes that are frequently made in a type of procedure which is so easily accessible to both physician and patient. There is hardly anything more instructive than to go over the possible mistakes in diagnosis, the indications, and the errors in selecting the proper time and proper type of treatment and in choosing the best solution for the individual case. By avoiding errors in the technic of injections, together with the prevention, early recognition and adequate treatment of sloughs, and by adhering to a systematic follow-up and treatment of recurrences, a physician will doubtless improve his results and render a valuable and economically impor-

* Read before the Buffalo Academy of Medicine, Oct. 1, 1930.
* From the Department of Surgery, Northwestern University Medical School.

tant service to the community. It is my purpose in this paper to discuss briefly the aforementioned sources of error in the treatment of varicose veins.

MISTAKES IN DIAGNOSIS

It would hardly seem necessary to say much about the diagnosis of varicose veins. If every dilated vein on the lower extremities is regarded as a varicose vein and treated as such, grave mistakes may occur. A group of rare but well defined cases of multiple arteriovenous communications may give rise to a mistake in diagnosis. In all four of my own personal observations, a diagnosis of varicose veins was made. Characteristic of this group, as I am pointing out in a forthcoming publication, is that (1) there is no pulsation visible or audible, as the communications are very small; (2) it is congenital, and becomes manifest in early life, progressing continuously; (3) the affected limb is warm and may be larger than its fellow, and (4) the blood in the dilated veins is arterial in character, this being easily recognized by the light red color of oxygenated blood. Such cases require extensive surgery, with ligation of the feeding arteries and extirpation of the dilated veins. If left alone, gangrene of the extremity and overburdening of the heart are frequent complications.

Buerger's disease, which affects arteries as well as veins, not infrequently starts with a spontaneous phlebitis, which subsides and occurs again. These recurring attacks may result in dilated veins with valvular insufficiency. Unless attention is paid to the absence of pulse, the dependent rubor and the characteristic intermittent claudication, the mistake is made and has been made of injecting such veins with sclerosing solutions. The same is true, though to a less extent, of venous dilatations occurring in patients with obliterated, arteriosclerotic vessels.

Another error, probably more frequent than any other, is to treat a patient's veins when his complaints originate in another source. I have frequently emphasized the frequent occurrence of flatfoot with varicose veins.[1] Ache in the calf, the knee and the hip joints, with less emphasis on the characteristic site of pain at the arch and the calluses may mislead the practitioner to interpret the patient's symptoms to be partly or solely due to varicose veins. An arthritis deformans of both knees in elderly patients continues to give persistent pain, even after the varices are obliterated. Bursae around the ankles or in the popliteal fossa, when found in the presence of a few insignificant veins, are easily overlooked. Any orthopedic difficulty, such as genu valgum, sacro-iliac pain or spondylolisthesis, if they radiate to the extremities, should be investigated.

K. W., a woman, aged 40, was referred to me for the treatment of extensive varicose veins. The treatment seemed advisable. The deep circulation was patent. The patient complained, however, of severe pain around the knee, which became more marked at night. There was no sign of phlebitis that might have accounted for such a pain. A roentgenogram revealed a large bone cyst at the lower end of the femur. This was curetted and the cavity filled with a pedicled flap of muscle. All the pain subsided.

In this case, as well as in many others, the discrepancy between the type or intensity of pain and the varicose veins leads the physician to look for coexisting and perhaps more important lesions. To avoid such errors, a thorough history and physical examination are essential. The patient with a few varicosities who is asked to roll up his pants and receives an injection for the pain in his calf may have a femoral hernia, a dislocated semilunar cartilage or a bone sarcoma.

MISTAKES IN INDICATIONS

Treatment is contraindicated in certain cases.

Systemic Diseases.—Even if the varicosities are small and do not cause symptoms, it is justifiable to obliterate them, as they are known to progress in later life and result in complications. The few ambulatory injections cause such little inconvenience and may prevent so much future trouble that I do not hesitate to inject them in an incipient stage. It is a mistake, however, to treat the veins when hyperthyroidism, active tuberculosis or even an acute cold is present. Again, the importance of a complete examination, which so many men ignore, must be stressed. The case of a young girl, who with slight evening rises in temperature received a few injections into her veins and died six weeks later of miliary tuberculosis, shows too well that a latent tuberculosis can be activated not only by foreign protein but by a mild irritative process such as the injection treatment.

Mechanical Obstruction.—In the varicose vein the flow of blood is reversed, without a true obstruction to the backflow. An obliteration of such dilated channels restores the venous circulation to normal. If, however, the superficial veins are dilated because of a true obstruction, as in pregnancy, abdominal growths and pelvic thrombi, the dilatation is compensatory and the treatment not warranted, unless it can be shown that these secondarily dilated veins have also become incompetent. Then they do not serve their purpose and may be injected. The most frequent mistake is made when such compensatory dilatations are injected in the presence of edema. Edema always signifies insufficient venous return, and injections into edematous legs usually increase edema not so much because of obliterating venous channels but because they activate latent deep phlebitides.

Latent Infection.—The dilated vein, with its slow current of blood, localizes infection readily. The stagnation interferes with capillary circulation and hinders fluid exchange of the tissues. Infection is likely to set in when tissues are poorly oxygenated. A low grade, latent infection is present in many patients who have never had an acute phlebitis, a massive thrombosis or an infected ulcer. The injection treatment, when given into this area of resting infection, may suddenly set up an acute phlebitis, with perivenous exudation and massive thrombi. In order to minimize such acute flare ups, the following rules should be observed: 1. Nothing should be injected into a vein unless at least three months has elapsed since an acute superficial phlebitis. 2. If the veins are hard, tender to the touch, and phleboliths are palpable, an effort should be made to test for latent infection. Gentle massage, heat or diathermy are most useful to detect latent infection.

MISTAKES IN THE TYPE OF TREATMENT

The incompetence of the entire long saphenous vein calls for a preliminary ligation of the saphenous vein above the highest palpable point.[2] If this procedure is not adopted, the number of recurrences will exceed 10 per cent. Also, the number of injections is much less after a preliminary ligation. This procedure, which

1. de Takáts, Géza: Varicose Veins and Their Sequelae, J. A. M. A. **92**: 775-782 (March 9) 1929.

2. de Takáts, Géza: Ambulatory Ligation of the Saphenous Vein, J. A. M. A. **94**: 1194-1197 (April 19) 1930.

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I have carried out on ambulatory patients in close to 150 instances, prevents the ascending type of thrombosis from extending into the femoral vein.

In another small but definite group of cases, the reflux of blood is not so much from above but through multiple incompetent communications from the deep veins. The Trendelenburg test is doubly positive. Injections in such patients do not give good results; they show a high percentage of recurrence. The logical treatment is a wide radical excision of all dilated veins. This is the only group, about 4 per cent of my total series, that still requires surgery. It is a mistake to inject and reinject and book these cases as complete failures.

In most cases, however, and this must be emphasized, the injection treatment alone gives excellent results. The later it is started, the more valves become incompetent and more radical procedures become necessary.

MISTAKES IN THE TECHNIC OF INJECTIONS

If the bevel of the needle is too long, the vein can easily be transfixed. If the bore of the needle is too large, leakage may occur after the needle has been withdrawn. If the vein is not emptied of blood, too much dilution takes place. Unless the vein is compressed below and above the injection with two fingers or compressors, the solution is carried away too soon. If the needle is not quite in the vein, the solution injected beside the vein may cause necrosis. Unless pressure pads are applied after the injection, the thrombi are large, are soft, or do not form at all. If the patient is told to go to bed after treatment and is immobilized for any length of time, the danger of embolism is greatly increased. If the legs are not bandaged for about three weeks after the completion of the treatment, the recently organized thrombi may canalize and an early recurrence may take place.

These are some of the most common mistakes that I have seen occur in watching young clinicians and medical students in my dispensary clinic. They are small details and yet each one of the mistakes may be responsible for a failure or untoward result in the treatment of veins.

MISTAKES IN THE SELECTION OF THE PROPER SOLUTION TO BE INJECTED

The solution selected to produce localized thrombosis must not be toxic, at least in the quantities used, must not be too painful, and should be irritating enough to produce endothelial damage in a satisfactory percentage of cases. One still hears of the use of mercury compounds in enormous doses. Two patients died of acute mercury poisoning following injection treatment. The salicylates are poorly tolerated by many patients and so is quinine. Not only do these drugs cause toxic symptoms; they may produce a hypersensitive reaction, an anaphylactic shock. Nevertheless it must be admitted that, in difficult cases which resist the other solutions, 2 cc. of a 10 per cent solution of quinine-urethane, divided into three or four segments, is most successful. It is advisable, though, to start with a minimal amount, before the patient's tolerance to the drug is known.

The best solution is still a mixture of 50 per cent dextrose and 30 per cent sodium chloride solution.[3] The first is too bland, the second too irritating, if used alone. A mixture of equal parts combines the advantages and lacks the disadvantages of the two solutions. Further improvement of these solutions is possible and desirable. If there were less cramping and if less of the solution could be used, more injections could be given at one sitting and this would shorten the duration of the treatment. Up to date, no addition of an antispasmodic or anesthetic drug has proved safe and effective.

The mixture of dextrose and sodium chloride is used in amounts of from 5 to 10 cc. at one injection. The amount of the solution should be commensurate with the size of the varix. Fine walled veins need less and may be injected with pure dextrose. Large saccular varices with thickened walls sometimes require pure sodium chloride; but for general use the mixture is most satisfactory. The mixture must, of course, be absolutely sterile. It should also be taken from reliable ampules or carefully sterilized by the physician. Solutions which show precipitates or which turn brownish yellow and give the odor of burnt sugar should be discarded. The caramelization of the dextrose solution occurs sometimes in old ampules or after too much autoclaving. It is a mistake to inject such solutions.

MISTAKES IN THE PREVENTION AND TREATMENT OF UNTOWARD REACTIONS

Sloughs.—Every physician who uses injection treatment must be fully aware that the solution, if deposited outside the vein, causes necrosis of the tissues. Depending on the type and amount of solution used, there will result a small painful perivenous infiltration, which is absorbed spontaneously, a large hard mass, which breaks down easily but may be prevented from doing so, or a frank gangrenous ulcer with a large necrotic mass around it. If a slough were caused whenever a solution was injected outside the vein, few physicians would practice the injection treatment. A few drops of a bland solution will only cause some burning and a slight inflammatory reaction, which, however, never results in a breaking down of the skin.

The use of large needles (larger than 23-24 gage) with long bevel produces leakage easily. Also some of the solution may infiltrate the wall of the vein, with resulting destruction. Some men inject although they are not absolutely positive of being in the vein. In other cases the needle may slip during the injection, and while the injection was correct in the beginning it is faulty in the end. When a growing hematoma is seen, the injection must be stopped immediately. When the patient complains of intense burning at the site of injection, and a ballooning out and blanching of the skin is visible, the danger of a massive necrosis is great. If from 5 to 10 cc. of the patient's own blood is injected immediately into the blanched area, a frank gangrene may sometimes be prevented. Even so, a hard painful mass may persist for weeks. Its absorption can be hastened with 30 per cent mercury ointment. No pressure pads should be employed above such areas, as this will further interfere with circulation.

The best prevention of sloughs, however, is the use of moderately irritating solutions. Sodium salicylate and quinine are most dangerous in this respect.

Cramps.—With the exception of solutions of quinine, all other drugs used for injection treatment cause cramping, which in sensitive women is sometimes unbearable. The endothelium of the vein is not sensitive to mechanical or chemical insults. When the solution diffuses through into the adventitia, it irritates the perivenous or pericapillary fibers of the saphenous

3. Kern, H. M., and Angle, L. W.: Chemical Obliteration of Varicose Veins, J. A. M. A. **93**: 595-601 (Aug. 24) 1929.

nerve. While the addition of amyl alcohol has been suggested to alleviate these cramps, it has not proved to be successful. It is a serious mistake to add procaine hydrochloride to the injected solution, as procaine when given intravenously is very toxic even in minimal quantities. At present there are no sure means of alleviating the cramp, and perhaps the cramp is helpful in keeping the solution longer in place. The cramp wears off in three or four minutes.

Cardiovascular Reactions.—When patients are anxious, particularly before the first treatment, they must frequently be reassured and the injections given only in the horizontal position. Younger women, with easily fluctuating blood pressures, faint easily when the needle is inserted. This is mostly a psychic reaction. Different are the reactions that are observed a few minutes after injections, in the form of pain in the region of the heart, palpitation and dizziness. I have seen them only after the use of quinine. Patients suffering from angina pectoris may easily develop an attack after injections. The diagnosis of such a condition contraindicates injection treatment.

MISTAKES IN THE AFTER-TREATMENT AND FOLLOW-UP OF PATIENTS

Patients should not be immobilized during and after the completion of the treatment. The only time when embolism is to be feared is when the patient afflicted with varicose veins has to stay in bed for a prolonged time.

Miss R. had suffered a fracture of the clavicle. On the fifth day, while in bed, a sudden pain developed in the left calf and shortly afterward a pain and pleuritic rub was observed in the left chest. It was then found that she had had large varicose veins for years, but they had never given her any trouble. A thrombosis occurred while she was immobilized in bed, and a pulmonary infarct signaled a breaking loose of the thrombus.

Such cases are the best argument for treating the varicose veins before any operation might immobilize the patient and favor embolism. Even more instructive is the following case:

A patient was sent to a young doctor for the treatment of varicose veins. The patient also gave the history of repeated attacks of appendicitis. The doctor, who had gained considerable experience in the treatment of varicose veins, first ligated the saphenous vein and then obliterated the distal segment by injections. Instead of waiting, however, for at least three weeks for the thrombi to organize firmly, he performed an appendectomy a week or ten days later. The appendectomy was difficult and required quite a lot of ligatures in the mesentery. The patient developed a number of large pulmonary infarcts but finally recovered.

While the interpretation of this case is not clear, as the appendectomy alone might be held responsible for the emboli, the injection treatment may have had some influence, in that further thrombi formed and mobilized during the period of rest. Anesthesia and dehydration may have been factors. The fact remains that no patient should ever be kept in bed or, even worse, operated on shortly after injection treatment.

In my personal experience with more than 800 patients who were all ambulatory, I could find not one patient with pulmonary embolism.

A bandaging of the leg during and after the treatment for three weeks is beneficial but not necessary. The thrombi seem smaller and firmer. If venous pressure is reduced, the fresh thrombus organizes more rapidly and is not submitted to back pressure.

A number of patients, in my series about 10 per cent, show recurrences.[4] The recurrences occur during the first year. It is a mistake to let the patient entirely out of sight and see him only with a large recurrence. If patients are reexamined every three months during the first year, early recurrences are recognized and are easily taken care of by a few injections. A large group of recurrences are due to the fact that the venous reflux from above has not been entirely stopped. For this group I have advocated the ambulatory ligation of the saphenous vein. Even if this has not been done at the time of first treatment, it may be done after the cause of recurrence has been ascertained.

In another group the recurrences and the appearance of new varicose veins is caused by a true venous block in the femoral or iliac veins. These patients were not suitable for the injection treatment, as in the true varicose vein there is no mechanical obstruction, and the deep circulation is intact.

I have enumerated a few of the most common mistakes in the treatment of varicose veins. Every physician makes mistakes daily, but by learning from his own mistakes and, what is more agreeable, from the mistakes of others, he is sure to improve his results and benefit his patients.

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CAUSES OF FAILURE IN INJECTION TREATMENT OF VARICOSE VEINS *

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So much has been written on the injection treatment of varicose veins during the past three years that we hesitate to add more to the already extensive literature. New ideas, however, are always welcome and we take the liberty of presenting this paper, hoping that the reader may find something worthy of his attention.

The injection treatment of varicose veins has long been accepted as the most rational method of caring for this malady. It is now used by most of the profession. When one considers the disability, the length of hospitalization, the pain, the expense, the scarring, and the mortality risk involved in the operative treatment of the past, one can readily see why the injection treatment is so universally accepted.

The one most commonly discussed shortcoming of the injection treatment is the percentage of recurrences.[1] It is granted that varices in veins actually removed by surgical operation will not recur.[2] However, it is our experience that in most operative cases it is but a short time until varicose veins can again be seen in the leg. This is probably due, in some degree, to new varicose vein formation but, to a greater extent, it is due to incomplete removal of all varices present at the time of the operation. In the best surgical hands the relief

4. de Takáts, Géza; and Quint, Harold: The Injection Treatment of Varicose Veins, Surg. Gynec. Obst. **50**: 545-561 (March) 1930.

* From the Varicose Vein and Ulcer Clinic, Minneapolis General Hospital.

1. Kilbourne, N. J.: Treatment of Varicose Veins of Legs: Consideration of Safety, J. A. M. A. **92**: 1320-1324 (April 20) 1929.

2. Homans, J.: Varicose Veins and Ulcer: Methods of Diagnosis and Treatment, Boston M. & S. J. **187**: 258-266 (Aug. 17) 1922; The Operative Treatment of Varicose Veins, Varicose Ulcers and Phlebitis, New England J. Med. **200**: 965 (May 9) 1929.

produced by the operative method has never been as complete as is the injection treatment, in equally good hands.

Recurrences following the injection treatment can and do occur. In the consideration of these recurrences the decision must be made as to whether or not the particular case in hand is a true recurrence or a new development. The number of actual recurrences can be decreased by better technic, while new formations cannot be prevented to any great degree, nor can they ever be so prevented until the etiologic factors producing varicose veins are better understood. When this is done it may be possible to curb the process and then prevent new formations.

In considering the etiology of varicose veins, most authorities [3] place the hereditary and congenital factor at more than 70 per cent of all cases. We are sure that it is present to that extent if not in a greater percentage. This means that the patient is born with vein walls weaker than the normal, so that when he is subjected to the strains of adult life [4] there is increasing congestion in the veins of the extremities and the vein walls give way and dilate. Such strains occur in pregnancy and in occupations demanding long hours of standing or walking on hard floors [5] with poor shoes. Often a patient dates the onset of his varicose veins from an attack of pneumonia, influenza or typhoid.[6] This would certainly give weight to the theory that a systemic infection is the active cause of his trouble whether there are congenitally weak walled veins present or not. Then there is the endocrine factor, which is, no doubt, important; but this again could act on those veins which already had congenitally weakened walls. This endocrine factor is most active and its results are most often seen associated with the three periods of the menstrual function—onset at puberty, pregnancy and the menopause.

With this explanation in mind it seems logical that more varicose veins could develop in new groups and from new sources, even though the original varicosities had been entirely obliterated. In other words, if the active factor in the causation of varicose veins is still present, more varices will form even though all those originally present were completely obliterated. This possibility of new recurrences if often neither fully realized by the physician nor clearly enough explained to the patient at the time of the treatment. It is thus clear that a definite distinction should be made between recurrences and new varicose vein formations. After making a review of a record carefully and accurately made at the time of the first examination and treatment together with a thorough inspection of the case on the return visit, one is often surprised to find that the veins present are not recurrences but are clearly new formations. For the physician's reputation as well as the patient's peace of mind, the possibility of this should be fully explained at the time of the first treatment. It is of much value to both and avoids much criticism of the physician in case he has guaranteed a cure.

Those cases which must be classed as true recurrences may now be considered. To what are they due and why do they occur? To answer this it is necessary to review the theory of the injection treatment.

With this method there is injected into the lumen of the vein a solution that will cause thrombus formation after the first process and an obliteration of the vein as an end result.[7] Most of the solutions that have been used in the past, as well as those which still remain in favor, are hypertonic in relation to the blood. It has been thought that this hypertonicity was an important factor in the case and it may be so. What causes the thrombus formation? The best explanation is given by Aschoff.[8] He states that the most important factor needed in thrombus formation is, first, stagnation of the blood stream; second, a destructive reaction on the vein wall, and, third, a reaction on the blood constituents. Strong irritating solutions can be injected slowly and in small amounts into the freely flowing venous blood without thrombus formation, yet this solution when injected into a vein in concentrated form and retained there will rapidly cause a thrombus to form, with the hemolysis of the blood cells and even destruction of the vein wall. The latter compares well with thrombus production in varicose veins.

If this is the theory on which the physician works when attempting to obliterate and sclerose varicose veins by the injection method, it is necessary that he should have absolute control of the solution injected and leave nothing to chance. In all surgical work the aim is to be as exact in technic as possible and to do everything with a definite end result in view, controlling all factors that affect it. For some patients a mild stimulant is required and for others a strong caustic, and these are applied according to need. Sometimes a very mild sedative is needed, at other times a very strong one. The surgeon plans accordingly and gets uniform, good and accurate results. Why not, then, use the same good judgment in the injection treatment of varicose veins? It is certainly logical, yet this point seems to be entirely disregarded by many practitioners who employ this treatment.

It is the teaching of many that the mere injection of an irritating solution into the lumen of a vein is sufficient to give results.[9] No attempt is made to control the strength of the solution injected or to localize it so as to secure more than momentary contact to the vein wall or reaction on the blood constituents. They may insist on a solution of a certain strength and perhaps choose a strong or concentrated one. However, if 0.5 cc. of a quinine and urethane (ethyl carbonate) solution is injected into a varix three-fourths inch in diameter filled with blood, it is certainly diluted 100 times the instant it is injected. The same holds true, in lesser degree, when from 3 to 5 cc. of a sugar solution is injected into the same large varix filled with blood, while the patient is standing. This is not controlling the treatment in any way. What could be more haphazard or trusting to luck than such technic? Some types of veins demand stronger solutions than others. They vary as to the age of the patient, the location of the vein, the nature of the vein, and whether or not it has been treated before.

Such a method and technic make no attempt to control positively and accurately the solution injected, to

3. Berntsen, Aage: De varices du membre inférieur speciellement, au point de vue de l'étiologie et du treatment chirurgical, Acta chir. scandinav. **92**: 61-85, 1927.

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meet these requirements. With such indifferent technic, it is no wonder that there are failures and recurrences in this treatment. Any other result could not consistently be expected. On the contrary, it is a surprise to all who stop to reason and use judgment in this work that with such technic as good results are obtained as are sometimes seen. It further proves the point that more accurate control of the solution injected, both as to strength and to localization, will give a much higher percentage of good and permanent results. We have often asked our critics why they do not make some attempt to empty the vein, keep the solution concentrated and try to localize it until a sufficient destructive action has taken place. In reply they say, "Well, they didn't do it in Vienna." Such an explanation does not suffice.

The pathologic work on biopsy specimens that we have removed at intervals of from one hour to two and one-half years after the injection and just completed by Dr. Nathaniel Lufkin clearly show that the maximum point of injury to the vein wall is at the site of the injection. It also demonstrates that the firmness of the thrombus seems to be most at that point. Oftentimes there is a firm thrombus only at that point with a red coagulation thrombus spreading to distant parts of the vein. The multiple injection plan of treatment is then the most logical, for we do not depend on an extension thrombus of any great extent. Rather, we prefer to cause a definite sclerosing effect at many scattered points along the vein from which a firm organizing thrombus will result. Each point of injection would then act similar to ligation in the operative treatment for this condition.

In the foregoing discussion we wish to imply that all varicose veins can be thrombosed and obliterated if the theory of accurate treatment is followed out and a technic is used to meet the specific indications in each particular patient.

It frequently happens that a case has been treated in which the veins were visible only at the internal condyle and below, where they were sizes 3 and 4 [10] with size 2 down about the ankle. Above the knee and in the thigh, no vein could be seen or located by the usual methods. It was assumed that the varices began near the knee as a blow-out of one of the communicating veins from the great saphenous or developed from the short saphenous. A good thrombosis had been obtained in all the visible veins following the treatment, and the patient had been discharged with a good result. From one to three years later the patient returns with many new varices over the lower thigh and with the great saphenous trunk visible and now easily located as a vein size 3 or 4 extending up to the saphenofemoral opening. Many of the old varices formerly treated and thrombosed had recanalized and opened up. Both the patient and the physician are disappointed in the failure to obtain a permanent obliteration of the varicose veins injected.

This occurs too commonly. What really happened was this: The great saphenous was varicosed with a defective valve at the saphenofemoral junction at the time of the first examination and treatment, but it was not recognized because the vein lay deep in the fat next to the deep fascia and could not be located by the usual methods since the fat and tonic skin hid it and had not allowed it to come to the surface where it could be seen or felt. It was not tortuous, as is often the case, yet it had the typical reverse flow with a downward hydrostatic pressure through a large straight tube, which would make it more effective in dilating the lower veins than if it were tortuous.[11]

This reverse flow and downward pressure is easily demonstrated by the experimental roentgenographic work done by several operators both in this country and abroad [12] and it has been repeated several times at our own clinic. This work clearly demonstrates the flow of blood in varicose veins to be stagnant or actually reversed in all the more extensive cases. If the great saphenous is patent at the saphenofemoral opening downward with a defective valve at that point, which allows the venous blood column to continue its downward hydrostatic pressure against the thrombosed segment of varicose veins at the knee and in the lower leg, it is reasonable to believe that this pressure will ultimately force open the old channel and that the main trunk will open the collateral vessels and form more varicose veins, as in the beginning.

A failure to recognize this all-important point is responsible for the great majority of failures when the technic was otherwise perfect. If the great saphenous trunk is not thrombosed and firm to the saphenofemoral opening in such a case, one may expect to have both a recurrence of the old varicose vein and the formation of many new ones through the opening of many collaterals. This is the exact situation and explains what happens when the operator fears to make or does not believe in making injections above the lower third of the thigh. This is the result also when in ligation of the great saphenous trunk a long stump of the main trunk is left above the point of ligation.[13] Just in the degree that the ligation is made near the saphenofemoral opening will the varicose veins below become obliterated with good and lasting results. In the same degree will good results be obtained if the great saphenous trunk is obliterated with a firm thrombus in its full course from the saphenofemoral opening downward.

It was our belief that the great saphenous was often as wide open as a size 3 or 4 varicose vein and fed the veins below even though it could be neither seen nor palpated that led us to develop some method by which we could settle this point in each individual case and to enable us to inject that varix when present, though deep and not apparent. In this attempt a study of the hydrostatic pressure was again employed with excellent results. If a soft thin-walled rubber tube is filled with water, held upright against a solid background and the lower part tapped or percussed, the percussion impulse will be transmitted lightly and firmly along the tube to the tips of the fingers of the other hand resting on the tube at any distance. In the same way the great saphenous trunk can be percussed out and its course marked for injection even though it is invisible and cannot be located by the ordinary means. For this the patient should stand and should place the weight of the body on the opposite leg and foot to relax the muscles in the leg under examination. The operator places the finger tips of the left hand along the usual course of the

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great saphenous in the thigh. Then with the fingers of the other hand, he taps or percusses the large varicose loops in the lower leg, and in particular the main segments just below the internal condyle. The impulse wave developed by this percussion on the blood-filled vein is transmitted upward along the vein as in the mechanical demonstration with the rubber tube. Occasionally this percussion impulse, or wave, is best developed by a heavy tapping: at other times with rapid and lighter percussion. At times only light pressure may be needed along the saphenous trunk, while at other times firmer pressure may be necessary to detect this impulse wave, as shown in the accompanying illustration. This phenomenon has not been described in the literature heretofore, so far as we know and we believe that it is original. We call it the "P. P. T." or the "percussion pulse transmitted." In the record of each case the examiner should state whether or not the percussion pulse transmitted is present. By means of this simple bit of technic the great saphenous trunk can be located and marked so that it can be injected later with the patient in the supine position and the vein nearly empty. This will assure a firm thrombosis of the whole saphenous system, because the solution is under absolute control all the time. All guess work concerning the extension of the thrombus upward from the injected areas is eliminated. In like manner the vein can be located for ligation by those who prefer that technic, though we much prefer the injections. We feel that ligation holds many potential dangers, except when it is performed in a well equipped surgery or surgical dispensary with all the necessary sterile operating equipment; and even then it is more dangerous than the injection treatment.

Demonstrating the P. P. T., or percussion pulse transmitted. Shows varicose ulcer of six months' duration fed and prevented from healing by the reverse flow of venous blood in the varicose vein above it. Vein not palpable in thigh except at the point marked. The impulse developed by tapping or percussing on the vein in the upper calf is transmitted upward and is felt by the finger tips above along the course of the great saphenous vein.

SUMMARY

A. Recurrences are due to:

1. Too great dilution of the sclerosing fluid or insufficient concentration of the fluid.

2. Failure to thrombose the great saphenous vein in the thigh completely even to the saphenofemoral opening.

3. Normal recanalization, which is nature's natural effort if the thrombosis is not firm and hard.

B. To prevent recurrences, the operator should:

1. Locate the great saphenous trunk by the percussion method and sclerose it up to the saphenofemoral opening.

2. Empty the veins before injecting, to aid concentration.

3. Localize the sclerosing fluid by the use of tourniquets or the Mac occluders, so as to prevent excessive dilution.

4. Choose sclerosing solutions according to the type and size of veins; for the small, thin walled veins use milder solutions, such as invert sugar, for large saccular veins use dextrose with sodium chloride combinations and for the pick-ups use the quinine and urethane solutions.[14] We have discarded the use of salicylates because of the severe pain and cramp.

5. Observe the patient till all the varicose veins are sclerosed satisfactorily.

6. Have the patient return in two months after discharge for check-up and at longer intervals after that.

C. Precautions as to the injections are to:

1. Employ sterile technic.

2. Be sure that the injection is made within the lumen of the vein.

3. Stop the injection immediately when there is doubt as to whether or not the solution is going into the lumen.

4. If a perivascular injection has been made it is best to infiltrate the area of the injection with from 10 to 20 cc. of physiologic solution of sodium chloride.

5. Apply sponge pressure to prevent leakage when the needle is withdrawn or in case the vein wall has been punctured.

6. Observe the patient every other day for from six to ten days following the initial treatment and then in two months, and see the patient at two to four month intervals after that. Yearly inspection is advisable.

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14. These solutions are now prepared by most of the drug supply companies. Of these solutions we prefer the one containing 15 per cent sodium chloride, 35 per cent invert sugar, and 5 per cent cane sugar or the one containing 30 per cent sodium chloride and 50 per cent dextrose in equal parts. These solutions are used in the great majority of our work, both private and at the clinic.

Tuberculosis of Stomach.—Tuberculosis of the stomach mimics and is always confused with the signs and symptoms of gastric ulcer, carcinoma or their complications. The coincidence of gastric carcinoma and gastric tuberculosis was observed by Faltin only twelve times. In a man 62 years of age, with tuberculosis of the apex of the right lung, he found adenocarcinoma of a tuberculous ulcer. Anschutz and Konjetzny found a single tubercle in the margin of a gastric carcinoma, and in the regional lymph nodes there were both carcinomatous metastasis and caseous tubercles. An organic gastric lesion, associated with pulmonary tuberculosis, is almost bound to be a gastric ulcer or a carcinoma; therefore, the patient, unless he is in the terminal stage of tuberculosis, should be accorded abdominal exploration.—Good, R. W.: Tuberculosis of the Stomach, *Arch. Surg.*, March, 1931.

THE INCIDENCE OF BRAIN TUMORS IN EPILEPSY

AS REVEALED BY ROUTINE ENCEPHALOGRAPHY *

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The use of lumbar insufflation of air to replace cerebrospinal fluid has made possible roentgenographic studies of the brain that clearly show the gross lesions and deformities otherwise undemonstrable. Reports of various observers, Friedman, Snow and Kasanin,[1] Carpenter,[2] Waggoner [3] and Pancoast and Fay,[4] indicate the value of this procedure in the accurate diagnosis and localization of obscure cerebral lesions.

The convulsions that occur after the third decade of life are usually symptomatic in type and should arouse the suspicion of an organic lesion. Parker,[5] in an analysis of 313 cases of brain tumor, found that in 67, or 21.6 per cent, there were major epileptic attacks, and that in 38 cases convulsions were the initial symptom. In 13 of his cases, no other complaint had been present for one or more years preceding the development of other signs and symptoms. Careful studies to determine the origin of these attacks are necessary and here the encephalogram has demonstrated its greatest value. Convulsive disorders are often the intitial symptoms of brain tumor and often lead to the erroneous diagnosis of epilepsy when the lesion lies close to the motor areas.

Fig. 1 (James B.).—Encephalogram, lateral view, showing normal fluid pathways and ventricular outlines.

By the use of encephalography, a clear concept of the pathologic condition is usually demonstrable and proves a most important aid in the differential diagnosis. Gross organic lesions are definitely localized by this means.

The normal pathways and encephalographic pattern are shown in figure 1. The interpretations of the obstructions of the cerebrospinal fluid pathway, their characteristic changes and the resultant brain atrophy have been reported by Pancoast and Fay,[6] Winkelman and Fay,[7] Dandy [8] and others. From these studies it has been shown that the filling defects produced by tumors are in sharp contrast to the shrinkage and brain

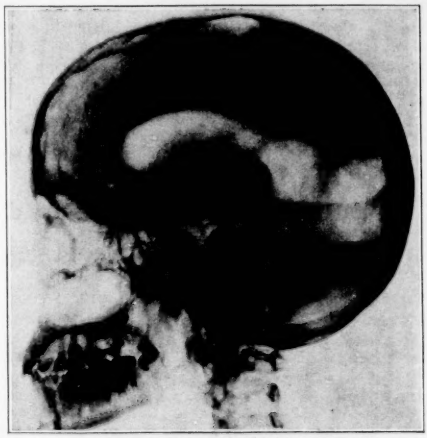

Fig. 2 (Anna B.).—Lateral view, encephalogram observations in a case of post-traumatic arachnoiditis. Note the absence of fluid pathways over the cortex, and the ventricular enlargement.

atrophies noted in the degenerative lesions. The presence of plastic arachnoiditis must be carefully differentiated from cerebral neoplasm, but here in the presence of an invasive or progressive growth the ventricular outlines and displacements are diagnostic. The ventricles may be encroached on, displaced or depressed by the tumor or invasive lesion, whereas plastic arachnoiditis and cortical scar formations (fig. 2) produce a traction and distortion of the roof of the ventricle, drawing it toward the area of the lesion, as pointed out by Penfield [9] and by Pancoast and Fay [4] (figs. 2 and 3).

My purpose in this paper is to present three cases of brain tumor, disclosed in the routine encephalographic studies made in this clinic on epileptic patients in whom the only prominent symptoms were convulsions. One of the cases had been diagnosed as idiopathic epilepsy, one as symptomatic convulsions of hypertension, and the other as post-traumatic (operative) jacksonian epilepsy. The final diagnosis was made only by the completion of the studies by injection of air. One of these cases showed an erosion of the bone in the frontal region which was thought to be due to a syphilitic process when viewed in the flat plates. An encephalogram

* From the Neurosurgical Clinic of Dr. Temple Fay, Temple University Hospital.

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clearly demonstrated the presence of a large cerebral neoplasm suggestive of a meningioma. The other two cases showed deformities of the ventricular outline and the patterns of the fluid pathways, which indicated a filling defect and invasive lesion. The size and location of the tumors were easily visualized.

REPORT OF CASES

CASE 1.—E. W., a white man, aged 43, was admitted to Temple University Hospital, April 3, 1930, complaining of convulsive attacks, stiffness of the right leg and left arm, and difficulty in writing and in making other movements of the fingers of the left hand. The patient was left handed, as the right arm had been amputated at the middle third some years before. The convulsions had been present for two years and occurred eleven months after the removal of a brain tumor from the left parietal region. Weakness of the extremity and spasticity had been present for six months prior to admission.

General physical examination was negative. Neurologic examination by Dr. N. W. Winkelman showed a swaying of

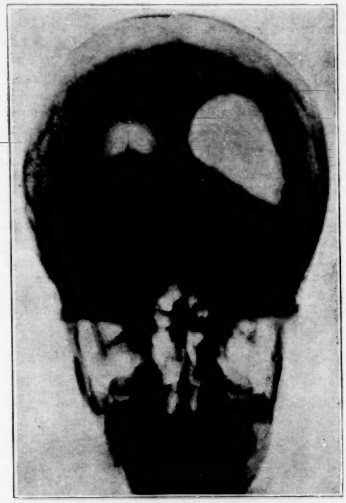

Fig. 3.—Anteroposterior view showing the unilateral dilatation of the ventricle and the pulling of the ventricle toward the site of the lesion.

the body with the eyes closed, a definite spastic gait, and a limp in the right leg. There was a suggestive clonus of the abortive type on the right but there was no Babinski reflex. Eyeground examination by Dr. Joseph Gouterman revealed no choking of the disks, and the visual fields were normal. The report of a Bárány examination was suggestive of a mass lesion in the brain with involvement of the cerebellopontile angle. The results of the laboratory examinations were: urinalysis, negative; Wassermann reactions of blood and spinal fluid, negative; colloidal gold curve, 0000000000.

April 11, 1930, encephalography was performed. The cerebrospinal fluid pressure was 12 mm. of mercury. Interpretation of the plates showed a midline shift of the structures to the right. The roof of the ventricle on the left was displaced downward. There was an obliteration of the pathways of the cortical fluid on the right and a plastic arachnoiditis on the left. The encephalographic diagnosis was brain tumor, left sided, with displacement of the structures to the right.

April 19, a left parietal craniotomy was performed by Dr. Temple Fay. The bone flap of the former operation was elevated, giving an ample exposure of the cerebral cortex. A large encapsulated tumor mass was found in the upper parietal region, attached to the longitudinal sinus and extending along the falx to the corpus callosum. The tumor was removed and the patient made an uneventful recovery.

The size and position of the tumor corresponded closely with the deformity of the ventricular outlines and explains their changes in size and the shift to the right, as well as the involvement of the fluid pathways. Except for the encephalographic observations, one would be inclined to explain the convulsions and the presenting symptoms as due to postoperative adhesions of the former operation.

Fig. 4 (case 1).—Lateral view showing the pressure curve and the deformity of the left lateral ventricle due to tumor mass, and the absence of cortical air pathways. The bony deformity is due to a previous operative opening.

CASE 2.—M. B., a white woman, aged 39, was admitted to Temple University Hospital, May 24, 1930, in status epilepticus,

Fig. 5 (case 1).—Anteroposterior view showing the depression of the roof of the ventricle from above and the shifting of the structures toward the midline by the tumor.

to the service of Dr. N. W. Winkelman. When the patient recovered from the series of attacks, she showed no focal symptoms of any type except mental apathy, which one would expect after a number of generalized convulsions. The previous history gave the onset of the convulsions at the age of 24, and first occurred during the first month of pregnancy. The

patient had two other subsequent pregnancies without convulsions. The next convulsion was in January, 1929, and since that time the attacks had become quite frequent, being precipitated on this occasion by status.

General physical examination was negative. Neurologic examination by Dr. N. W. Winkelman showed a middle aged woman of marked mental hebetude, with the facies of a person with chronic epilepsy. There was no involvement of the

Fig. 6 (case 2).—Right lateral view showing the depression and deformity of the anterior horn of the right ventricle by tumor. The left ventricular outline is normal. Note the erosion of the bone of the skull due to invasion of the tumor mass extradurally.

cranial nerves. The muscle power was good in all extremities; the reflexes were normal and equal and there were no pathologic reflexes. All cerebellar tests were well performed; the station and gait were normal. The tentative diagnosis was idiopathic epilepsy.

Examination of the eyegrounds by Dr. Gouterman showed no involvement of the ocular movements, and the fundi and fields of vision were normal. The roentgenograms of the skull showed an area of rarefaction of the frontal bone on the left. June 5, encephalography was performed by Dr. E. L. Clemens. Cerebrospinal fluid pressure was 14 mm. of mercury in the prone position. A total of 100 cc. of fluid was removed and 90 cc. of air introduced into the lumbar canal. Interpretation of the plates showed an absence of air over the cortex, with the exception of a few pathways in the lower frontal region that were slightly dilated. The left ventricle was smaller than the right and was pushed down from above, as if by some rounded mass. The left ventricle was very irregular. The anteroposterior and postero-anterior views showed the left ventricle pushed downward and to the right, with a displacement of the right ventricle to the right. Diagnosis from the encephalogram plates was a tumor of the left frontal lobe, probably endothelioma in type.

June 29, a large flap over the left frontoparietal region was made by Drs. Temple Fay and myself. Reflection of the bone exposed a nodule of tumor about the size of a dime, projecting above the dural surface and closely connected with the dura, giving the appearance of a meningeal type of tumor. Reflection of the dura exposed a large tumor, in the upper pole of the frontal lobe, encapsulated, about the size of an egg, and growing downward into the cerebral cortex. The tumor was removed in its entirety and the patient made an uneventful recovery.

Completion of the examination of this patient with encephalographic studies gave the nature and cause of the convulsions, as well as the exact localization of the lesion. The location of the tumor closely corresponded with changes in the ventricular outline and easily explained the deformities and the shift of the structures from their normal position.

CASE 3.—C. R., a white man, aged 41, was admitted to Temple University Hospital, June 18, 1930, to the service of Dr. Temple Fay, complaining of attacks of unconsciousness, at times associated with convulsive movements. His past medical history was negative except for a mild injury to the head in August, 1927. The patient was not unconscious at the time and was able to continue his work. The first convulsive attack was in January, 1929, when he had a severe cramp in the left arm. He lost consciousness in a few moments, was then taken to Mercy Hospital in Trenton, N. J., and remained unconscious for twelve hours. During this attack there was frothing at the mouth and biting of the tongue. After he regained consciousness, the left side of the body had a sensation of burning. The patient had a systolic blood pressure of 200 at that time, which was thought to be the cause of the convulsions and unconsciousness. He had a lumbar puncture and drainage of a large quantity of cerebrospinal fluid, after which he regained consciousness. There was a period of freedom from attack for several months, after which he began to have momentary attacks that simulated petit mal. These occurred about once every two weeks. June 6, 1930, he had another prolonged period of unconsciousness, which lasted fifteen hours and was initiated by convulsive movements. Following this, he came to the hospital for study.

Physical examination was negative. Blood pressure was 130 systolic and 80 diastolic.

Neurologic examination by Dr. N. W. Winkelman showed definite weakness of the lower right side of the face, but only to voluntary motion. The right pupil was larger than the left; the external ocular movements were normal. There was no nystagmus. The reflexes on the right were more prompt than those on the left, and there was bilateral clonus but no Hoffman and no Babinski signs. The muscles of the hands were extremely flabby. It was Dr. Winkelman's opinion that the condition was probably due to one of three causes: the result of trauma, syphilis of the central nervous system, or brain tumor. The blood and spinal fluid Wassermann reactions were negative and the colloidal gold curve was flat. The traumatic history was one of extreme mildness, without unconsciousness,

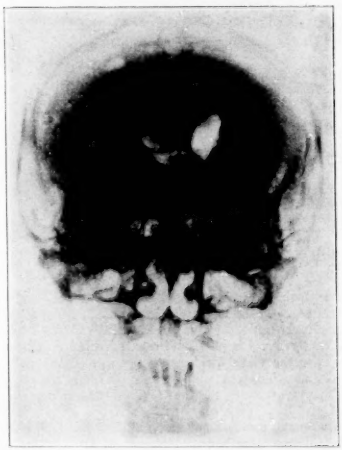

Fig. 7 (case 2).—Anteroposterior view showing the depression of the right lateral ventricle and the shifting of the structures beyond the midline.

and occurred in August, 1927. The most probable diagnosis was brain tumor, but the localization was not definite.

Examination of the eyegrounds by Dr. Boehringer showed no choking and a normal visual field.

June 23, 1930, encephalography was performed by Dr. Temple Fay. Pressure of fluid in the prone position was 6 mm. of mercury. A total of 140 cc. of fluid was withdrawn and 135 cc. of air was injected.

Interpretation of the plates showed a narrowing of the ventricles, with a displacement downward. The right ventricle was pushed to the right and stereoscopically showed a pressure curve in its center, as if being encroached on by some mass. The encephalographic diagnosis was brain tumor, midline, and possibly extending along the falx cerebri.

The patient was sent home, with instructions as to maintaining a low fluid intake, and was advised to wait until there were more urgent operative indications before submitting to any surgical procedures.

Fig. 8 (case 3).—Left lateral view showing depression and almost complete obliteration of the central portion due to suspected midline tumor. A small opening remains between the anterior and posterior horn of the ventricle, which has prevented an internal hydrocephalus from developing.

This case, while presenting more signs of cerebral lesion than the other two cases, gave no indication as to the type or localization of the lesion.

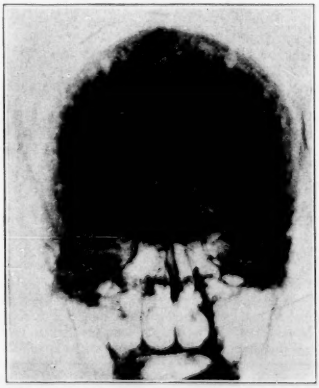

Fig. 9 (case 3).—Anteroposterior view showing the extreme depression of the left lateral ventricle. The right lateral ventricle is compressed and distorted and almost completely obliterated.

COMMENT

During the past eight months, the routine encephalographic studies made on fifty-six epileptic patients in this clinic revealed three cases of localized brain tumor, in two of which the tumor was subsequently removed. The third case is awaiting operation.

The proportion of unsuspected focal lesions in this sort of condition is therefore 5.3 per cent. The beneficial results of early recognition and removal of the tumor is evident and the use of encephalography as a diagnostic procedure is of great value in establishing the characteristics and pathologic changes associated with convulsive seizures.

In each of the cases presented, convulsions were the initial symptom; in two cases, clinical neurologic signs were not sufficient to establish the presence or localization of brain tumor, and as there were no signs of generalized intracranial pressure there appeared to be no reason for suspecting such lesions.

CONCLUSIONS

The use of encephalography for diagnosis and localization of organic lesions of the brain has been found to be of great value in this clinic. When properly undertaken with due regard to technic and contraindications, it is a safe and justifiable procedure attended with little risk. The advantages of early recognition of brain tumors and their removal before signs of intracranial pressure develop has given a most satisfactory symptomatic and clinical relief.

COMPLETE STRICTURE OF THE COMMON AND HEPATIC DUCTS

TREATED BY TRANSPLANTATION OF EXTERNAL BILIARY FISTULA INTO THE STOMACH OR DUODENUM: REPORT OF FIVE CASES *

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The causes of stricture of the common and hepatic bile ducts, in order of frequency, are operative injuries to the ducts, adenocarcinoma and diffuse inflammation of the biliary tract.

The report of a case of stricture of the common bile duct by W. J. Mayo,[1] in 1905, in which an accurate anastomosis had been made between the stump of the duct above the stricture and an opening made in the duodenum, laid the foundation for the development of plastic surgery of the common bile duct for the relief of stricture. This contribution became notable because of the excellent results that followed the proper execution of the method over a period of a quarter of a century.

In certain cases, stricture of the common and hepatic ducts is so extensive that there is not sufficient normal duct above the stricture to enable one to anastomose it to the duodenum. In such cases, it had been the custom to use pieces of rubber catheter to replace the absent portion of the ducts, as suggested by Sullivan,[2] in the hope that the catheter would form a channel that would continue to serve as an unobstructed internal fistula. This it did for a time, but in some cases the lumen of the tube became encrusted with bile pigment and bile salts, which produced enough obstruction to necessitate removal of the tube, or, if the tube passed spontaneously into the intestinal tract, contracture of the sinus not infrequently occurred. That such con-

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1. Mayo, W. J.: Some Remarks on Cases Involving Operative Loss of Continuity of the Common Bile Duct, with the Report of a Case of Anastomosis Between the Hepatic Duct and the Duodenum, Ann. Surg. **42**: 90-96 (July) 1905; Restoration of the Bile Passage After Serious Injury to the Common or Hepatic Ducts, Surg. Gynec. Obst. **22**: 1-6 (Jan.) 1916.

2. Sullivan, A. G.: Reconstruction of the Bile Ducts, J. A. M. A. **58**: 2026-2029 (June 29) 1912.

tracture is not always the case was called to my attention recently by a patient operated on by W. J. Mayo, June 25, 1925, in which two tubes were used to bridge the gap of approximately 3 cm. between the stumps of the hepatic ducts and an opening made for them in the duodenum after the stones had been removed from the intrahepatic ducts. In 1926 the tubes were still in place, as shown in the roentgenogram. In September, 1928, the patient's health was good, although she had had two episodes of pain in the right upper quadrant of short duration with slight transient jaundice and pruritus but without alteration of the normal color of the stools. The serum bilirubin was now 1.6 mg. for each 100 cc. with a delayed direct van den Bergh reaction. The tubes were not visualized by roentgen ray. Sept. 20, 1930, the patient returned for re-examination, stating that in March, 1929, she had one mild attack of pain with jaundice lasting two days. At examination her condition seemed to be excellent. The serum bilirubin was 1.6 mg. for each 100 cc., and the secondary anemia which had been present in 1926 and 1928 had disappeared. In other cases of this type, a T-tube was used to bridge the gap, usually with uncertain results after its removal.

Williams,[3] Lilienthal[4] and Lahey[5] described a successful method of relieving this type of obstruction by the establishment of an external biliary fistula, the fistula being transplanted subsequently into the stomach or duodenum. The successful outcome in such cases, provided the fistula has been transplanted accurately, is probably dependent on the condition of the liver and the effectiveness with which the external fistula drains the hepatic ducts, although cirrhosis of the liver and infection of the intrahepatic branches of the biliary tract (which occasionally exists in cases in which the obstructive jaundice has been of long duration) may interfere with a result which in their absence has been proved in several cases to be excellent. Similarly it must be ascertained that the fistula efficiently drains the hepatic ducts. My attention was focused on this in an operation performed recently on a patient who came to the Mayo Clinic with an external biliary fistula following cholecystectomy performed elsewhere. The usual history was present in this case: comfort when the bile drained and pain with chills and fever when it did not. The fistulous tract was followed down to a point adjacent to a remnant of the common bile duct and was found to be connected with a small opening in the side of the stump of the common bile duct. However, the diameter of the stump of the common bile duct was approximately 2 cm. and permitted of a much better and more accurate anastomosis to an opening in the duodenum and more certainty of the results than if the fistula itself were transplanted. Furthermore, incision into and drainage of the dilated stump of the bile duct enabled exploration. Three stones, each approximately 1 cm. in length, were removed from the intrahepatic ducts. If they had been overlooked, the patient's symptoms would have continued.

Cases of successful transplantation of biliary fistulas into the stomach or duodenum have been reported by Williams, Lahey, Lilienthal, St. John,[6] Masson,[7] Roeder[8] and Walters.[9] The total number of cases of transplantation of these fistulas that I have found recorded in the literature, including those I am reporting here, is twelve. Williams' patient, operated on in 1913, was living and well in 1929.

I have had occasion, in the last three years, to establish external biliary fistulas and later to transplant them into the stomach or duodenum in five cases of complete stricture of the common and hepatic bile ducts, in which insufficient normal duct remained between the liver and the strictured portion to permit direct anastomosis to the duodenum or stomach.

REPORT OF CASES

CASE 1.—A woman, aged 43, was operated on in December, 1927, at which time she had been deeply jaundiced for two months. The serum bilirubin was 15 mg. for each 100 cc. A complete stricture of the common and hepatic bile ducts was found, and an external biliary fistula was established. The patient returned home, Jan. 10, 1928, at which time the jaundice had practically disappeared.

The patient returned to the clinic, February 29, in excellent condition, having gained 10 pounds (4.5 Kg.) and being free from jaundice, with a serum bilirubin of 0.3 mg. for each 100 cc. March 13, the biliary fistula was coned out and transplanted into the duodenum. April 21, the incision was healed and the patient's condition was good. A normal amount of bile was present in the stools.

The patient remained perfectly well; was free from pain, fever, or jaundice until the winter of 1929, when, following an attack of influenza, abdominal discomfort was noted. Noticeable alteration of the color of stools from a normal brown to a much lighter color was noted; within a few days the stools returned to normal color and the itching which had been present disappeared. She returned to the clinic, March 6, 1929, for reexamination. The examination showed that the liver was not palpable, skin and sclera were clear, and the color of the stools was normal for bile. A normal amount of bile and a normal concentration of pigment were obtained. The serum bilirubin was 1.3 mg. for each 100 cc. The Rowntree-Rosenthal test of hepatic function showed retention of dye, graded 3. In December, 1929, the patient reported her health as excellent. She had not had chills, fever, jaundice or any further pruritus. She had continued to gain in weight and now weighed 125 pounds (56.7 Kg.).

In a letter received Sept. 3, 1930, the patient stated that her condition was excellent, that she had not had evidences of biliary obstruction since her last letter, that her stools had been normal, and that she had not had jaundice or fever.

CASE 2.—A woman, aged 47, had had jaundice following cholecystectomy performed elsewhere four weeks previously. The serum bilirubin was 18.4 mg. for each 100 cc. Secondary anemia was evidenced by hemoglobin of 50 per cent.

March 11, 1930, exploration disclosed a mass of scar tissue involving the entire length of the common and hepatic bile ducts. The intrahepatic duct was opened and 200 cc. of thick, brownish bile was drained. An external biliary fistula was established around a number 16 French catheter; subsequently the jaundice diminished, and, May 3, the concentration of serum bilirubin had decreased to 1.9 mg. for each 100 cc. May 8, the external biliary fistula was coned out and transplanted into the stomach, leaving the fistula attached to the

3. Williams, Hugh; and Smithwick, R. H.: Treatment of Biliary Fistula by Direct Implantation of the Tract into the First Portion of the Duodenum, Ann. Surg. **89:** 942-945 (June) 1929.

4. Lilienthal, Howard: Chronic Biliary Fistula: Implantation of Sinus into the Stomach, Ann. Surg. **77:** 765-766 (June) 1923.

5. Lahey, F. H.: Chronic Biliary Fistula: Implantation of Sinus into the Stomach, Ann. Surg. **77:** 767 (June) 1923; Implantation of Biliary Fistula into Duodenum: A New Method of Treatment, J. A. M. A. **80:** 893-894 (March 31) 1923; Treatment of Common Duct Biliary Fistulae by Anastomosing Them into the Intestinal Canal, S. Clin. North America **4:** 1483-1487 (Dec.) 1924.

6. St. John, F. B.: Late Result of Biliary Fistula with Implantation of Fistulous Tract into Stomach, Ann. Surg. **83:** 855-857 (June) 1926.

7. Masson, J. C.: Personal communication to the author.

8. Roeder, C. A.: Transplantation of a Biliary Fistulous Tract into the Duodenum, Ann. Surg. **91:** 144-147 (Jan.) 1930.

9. Walters, Waltman: Discussion, Proc. Staff Meet. Mayo Clin. **4:** 77 (March 6) 1929; Strictures of the Common and Hepatic Bile Ducts: Postoperative Progress in Seventeen Cases, Surg. Gynec. Obst. **48:** 305-313 (March) 1929; Obstructive Jaundice: Its Treatment, Complications, and the Results of Treatment, New England J. Med. **201:** 1-6 (July 4) 1929; Presentation of Two Cases in Which Operation was Done for Intermittent Biliary Obstruction with Jaundice and Presentation of a Case of Complete Stricture of the Common and Hepatic Ducts with Purposeful Surgical External Biliary Fistula, Proc. Staff Meet. Mayo Clin. **5:** 98-99 (April 9) 1930; Transplantation of an Established External Biliary Fistula into the Stomach, Proc. Staff Meet. Mayo Clin. **5:** 148-149 (May 28) 1930.

under surface of the liver, as suggested by Lahey. The patient's convalescence was uneventful and she was allowed to return to her home in a nearby city the sixteenth day after operation. The wound was healed and her general condition was excellent.

The patient returned to the clinic, at my request, on three subsequent occasions for reexamination: May 28, June 13 and July 31, 1930. The stools on these occasions contained a normal amount of bile, and July 31 there was no visible jaundice, the serum bilirubin being 1.3 mg. for each 100 cc., with an indirect van den Bergh reaction. The blood urea was 26 mg. for each 100 cc., and a test of hepatic function showed retention of dye, graded 3. There had been no evidence of biliary obstruction.

CASE 3.—A man, aged 59, had had cholecystectomy for the removal of stone from the common bile duct elsewhere in January, 1929. For several years before this, he had had intermittent attacks of biliary colic and jaundice. Following the operation in January, 1929, he continued to have similar attacks, and in June a second stone had been removed from the common bile duct, following which drainage of bile continued for seven weeks. Ten days after the cessation of drainage, colic again appeared in the upper right side of the abdomen. Shortly afterward the incision opened and the bile drained to the exterior. Each time the biliary fistula closed, biliary colic and jaundice appeared. Examination at the clinic, Dec. 20, 1929, disclosed biliary fistula. The patient was deeply jaundiced; the serum bilirubin was 8.1 mg. for each 100 cc.

After preliminary preparation, the patient was operated on, December 28. The duodenum was found to be adherent to the fistulous tract. In the region of the common bile duct and pancreas there was a mass of dense adhesions and there was induration at the head of the pancreas, not typical of carcinoma. The liver was enlarged and congested, and all the tissues oozed freely. Dissection of the duodenum from the under surface of the liver and the dense scar tissue might have been complicated by tearing the duodenum, and in view of this and the general oozing it seemed advisable at that time to transplant the fistula into the duodenum. The fistulous tract was coned out and a portion of a number 14 French catheter, about 2.5 cm. in length, was left in the fistula and the fistula was transplanted into the duodenum. The patient's convalescence was uneventful and he was allowed to go home directly from the hospital, Jan. 23, 1930, at which time there was a slight amount of bile draining from a small area, less than 1 mm. in diameter, in the incision.

The subsequent course in this case would seem to indicate that the transplanted fistulous tract is unobstructed and transmitting bile into the intestinal tract. In a letter, written February 27, the patient stated that he had gained 10 pounds (4.5 Kg.), the incision was no longer draining bile, stools were normal in color, and his skin was practically free from jaundice. In April, he reported that he had gained an additional 5 pounds (2.3 Kg.), had an excellent appetite and although he had had, on a few occasions, some aching in the region of the incision, it was neither prolonged nor severe in comparison with that before the operation. A letter from him, dated Aug. 27, 1930, stated that he had gained 28 pounds (12.7 Kg.) since the operation, and was in excellent condition without further pain; the stools were normal in color, jaundice was not present, and he was carrying on all of his duties.

CASE 4.—A woman, aged 43, had become jaundiced in February, 1928, one week after cholecystectomy and appendectomy had been performed elsewhere. One week later, an external biliary fistula was established which continued to drain until July, 1928, when drainage ceased. From July until late in November, the patient had biliary colic with jaundice and extreme pruritus.

December 19, on abdominal exploration, I found a stricture of the common bile duct involving the entire duct to within 2 mm. of the liver. An external biliary fistula was established with placement of a number 16 catheter into the remnant of the duct. The patient returned for transplantation of the fistula, March 7, 1929, at which time it was coned out and the fistula was transplanted into the duodenum. A piece of number 14 catheter had been inserted into the end, where it was maintained temporarily by ligation. Convalescence was uneventful and the patient was dismissed from observation, April 3, 1929.

August 9, the patient reported that she had been feeling well since the operation and had gained several pounds. In the latter part of July she had noticed some fulness in the abdomen and was slightly jaundiced for four or five days. In reply to a questionnaire sent to her, December 2, she reported that she had had intermittent pain in the right upper quadrant with chills and fever for two weeks during the latter part of November. She had gained 15 pounds (6.8 Kg.) since the operation.

CASE 5.—A woman, aged 50, registered at the clinic in 1927 with a history of having had cholecystectomy elsewhere in 1922, since which time she had had severe, almost constant generalized pruritus. She was slightly jaundiced, with a serum bilirubin of 1.1 mg. and a direct van den Bergh reaction.

At operation, July 22, 1927, I found a stricture of the common and hepatic bile ducts, the stricture extending almost to the liver. One end of a T-tube was inserted into the hepatic portion of the duct, and the other end into an opening made in the duodenum. August 12, the patient was dismissed with the T-tube in place; she was advised to keep the tube in permanently.

The patient returned to the clinic, Jan. 19, 1928, stating that the tube had remained in place for three months, during which time she felt well; the jaundice and pruritus had completely disappeared and the stools were normal in color. Then the tube was accidentally removed, and three weeks later she had had recurrence of pain, with attacks of chills, fever, jaundice and itching. These attacks occurred at intervals of from ten to fourteen days. Surgical treatment at that time was not advised.

The patient returned, Oct. 3, 1928, stating that the attacks of biliary obstruction had increased in frequency, lasting from two hours to one day, accompanied by chills and fever, residual soreness and increased pruritus. Jaundice had been present constantly for four months. She had secondary anemia; the hemoglobin was 47 per cent. Erythrocytes numbered 3,640,000, and the serum bilirubin was 7.1 mg. for each 100 cc.

October 19, an external biliary fistula was established. On opening the intrahepatic duct, a gush of clear bile and material containing some stony granular particles, from 1 to 3 mm. in diameter, rushed forth. A number 20 catheter was inserted into the intrahepatic portion of the duct. The patient returned home for a period of three months and then returned to the clinic, stating that she had gained 15 pounds (6.8 Kg.) and her general condition was excellent. The blood urea was normal; the hemoglobin was 45 per cent and the serum bilirubin was 1.8 mg. for each 100 cc. The coagulation time was eight minutes and forty-five seconds.

The patient was prepared for operation, and March 19, 1929, the biliary fistula was coned out down to the margin of the liver, leaving about 1.5 cm. of it beyond the liver. A portion of the number 16 catheter was introduced into the fistula and the fistula and catheter were transplanted into the stomach. After the operation, the patient's temperature increased progressively to 104 F. and the pulse rate to 135, until the fifth day, when she died. On the third and fourth days after the operation, two transfusions of blood were given without benefit.

At necropsy a cirrhotic liver was found which microscopically revealed considerable cloudy swelling of the cells with fatty infiltration. There was considerable blood in the peritoneal cavity. The transplanted fistula was patent and was satisfactorily transmitting bile into the stomach, and there was no evidence of leakage at the anastomosis.

SUMMARY

Five cases are reported in which purposeful external biliary fistulas were transplanted into the stomach or duodenum for the relief of biliary obstruction due to stricture of the common bile duct, so extensive that there was not enough normal duct to enable anastomosis into the duodenum.

In two of the cases the results have been excellent. There has been no evidence of further biliary obstruc-

tion. One of these patients was operated on two and a half years ago.

Two of the patients had good results. They have been relieved of the constant jaundice and itching, and have improved in health and gained in weight, but at times have had indications of either stasis of bile or cholangeitis evidenced by transient jaundice or mild pain.

One patient died the fifth day after operation, from hepatic insufficiency and intra-abdominal hemorrhage. She had been jaundiced for years prior to the transplantation of the fistula.

HEART SOUND FAILURE

A PHONOCARDIOGRAPHIC STUDY OF THIS PHENOMENON IN ACUTE CORONARY OCCLUSION

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The protean manifestations of the syndrome of coronary thrombosis have been so clearly delineated by many careful and painstaking observers that, as a result, there has now arisen a well defined clinical entity. It is a credit to American medicine that the principal contributions to the subject of coronary occlusion have been made almost exclusively in this country; starting with the original work of Herrick in 1912, the literature on the coronary arteries and their diseases has steadily continued to increase in scope and importance.

While coronary arterial disease has been known to pathologists for the past 200 years, it is only within comparatively recent times that this condition has been sharply differentiated from allied and overlapping symptom complexes. This generation is witnessing a remarkable transition in some of the most fundamental concepts of cardiovascular thought; the older master clinicians were still unable to differentiate between the picture presented by sudden occlusion of the coronary vessels and the symptoms seen in angina pectoris or in acute gastro-intestinal disturbances. Osler, as late as 1910, in his Lumleian lectures on angina pectoris could not distinguish between the clinical aspects of pure coronary thrombosis and the involved symptomatology of anginal stenocardia. His division of angina pectoris into three groups of mild, moderate and severe includes in the latter group many cases of coronary thrombosis with spontaneous rupture of the heart and other serious complications of myocardial dissolution.

At the time of its publication in 1924, Sir James Mackenzie's volume on angina pectoris was unquestionably the outstanding work on the subject in any language; yet a careful perusal of his case reports indicates that he had not clearly defined the symptoms arising as the result of coronary stoppage from those developing as a part of the anginal syndrome. He was at a loss at times to explain the variations encountered in the physical examination of patients presenting similar attacks of cardiac pain and even at a greater loss to account for the singularly sudden deaths in cases with apparently mild symptoms.

Vaquez fared no better; praise is due him, however, in that he recognized that within the anginal syndrome there existed two entities: one which developed as the result of effort, and the other coming on at rest. He and his colleague Lutembacher are responsible for the phraseology of "effortless" and "decubital" angina. This was a decided step forward and is now history.

To such American contributors as Libman, Hamman, Gross, Smith, Herrick, Wearn and Levine has been allotted the task of the final crystallization of these two diseases, and the present status of angina pectoris and coronary thrombosis owes its clarification to the tireless efforts of these workers. The familiar picture of the hapless victim suffering from angina pectoris has been so clearly painted throughout the past generation that no medical student experiences any difficulty in making the diagnosis. The middle aged person, well fed and usually overweight, who suffers, on exertion, the typical pains both local and referred is one of the most readily identified characters in clinical medicine. The prompt response to rest and nitrites and the almost immediate recovery furnish confirmatory evidence as to the nature of the malady. Angor animi, the rigid chest and the immobile features complete the picture. To this may be added a rather negative physical examination with the possible exception of changes in blood pressure, a slight elevation during the attack being the rule.

In marked contrast to this individual is the patient who suffers pain of the most excruciating nature; a pain coming on without effort or warning, and not infrequently even while asleep. Extending over the substernal areas, painful sensations may be experienced

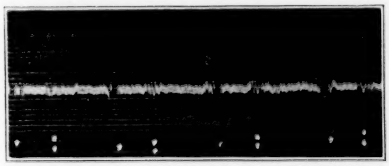

Fig. 1.—Phonocardiographic records of the normal adult heart sounds. These records are taken by the authors' modification of the Houlitte oscillographic method. Note that the first heart sound (indicated by .) has a far greater amplitude than the second heart sound (indicated by :); the duration of the second sound is, however, somewhat longer than the first.

not only over the chest but also through to the back, both shoulders and less frequently into the extremities. Of especial interest is the localization in the epigastrium of painful areas that sometimes may extend well down into the abdomen. The abdominal manifestations of coronary thrombosis are the ones most frequently responsible for disastrous surgical errors; the simulation of acute conditions in the abdomen demands the exercise of the most keen discernment on the part of the diagnostician.

The pain of coronary thrombosis is continuous and persistent, yielding to no therapeutic measures less than massive narcosis, the drug of choice being morphine. The restless and uncontrollable agitation of the sufferer, coupled with the profound and almost immediate shock, arrests the attention of the observer at once that something decidedly sinister and dangerous has occurred. The facies, with its attendant and characteristic pallor, the weak and thready pulse, the cold perspiration all augment the symptom complex and will quickly differentiate it from the ordinary anginal seizures.

With an insight based on a pathologic background the observer readily visualizes the series of changes that have taken place in the heart; the obstruction of an important blood carrier with the immediate depriva-

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tion of a large myocardial segment of its nutrition at once calls into play all the protective and life-saving mechanisms which this organ so singularly possesses. It is small wonder, therefore, that the various electrodynamic and hemodynamic factors of the heart are considerably disturbed and that altered cardiac function should be the inevitable result. Struggling against odds overwhelming in extent, the crippled heart is forced not only to maintain its own integrity but also to provide an adequate circulation for life to go on.

Turning to the examination of the patient, one is struck by the lack of evidence indicating the terrific turmoil that is going on within; instead of tumultuous heart action with a heaving apical impulse and signs of enraged cardiac activity, the observer is struck by the absolute lack of any such response to injury. Indeed, even the usual signs of the beating heart may be entirely absent, shallow respiratory movements being the only phenomenon present. Localization of the apical thrust may be impossible and the attempt to feel any cardiac movement is met with failure.

Auscultation of the precordium is no more satisfactory; the ear of the observer is greeted by faint and at times hardly perceptible heart sounds. At the apex no sounds of any kind can be distinguished, while at the basal areas, muffled and distant sounds can be determined with some difficulty. More often the only notes perceptible arise over the pulmonic valvular area and here there may be but one distinguishable heart sound.

This failure of heart sound quality has been commented on by many authors, who have attempted to describe its occurrence by such terms as "feeble" and "distant"; Katzmann speaks of the fetal or embryonal character of such heart sounds, while Janeway compared it to the tick-tack rhythm of a watch. Vaquez illustrated this phenomenon to his students by having them listen to the normal heart sounds through a pillow; yet none of these adequately convey the striking change that takes place in the heart sound mechanism during the initial period of a coronary accident. The sudden transition from the normally well heard and easily distinguishable heart tones to practically inaudible sounds is one of the most remarkable manifestations of this disease, made the more so on account of the unanticipated conditions found. As pointed out previously, with such widespread myocardial involvement and the imminent nature of the disaster, more evidence of such destruction should be apparent. We have been interested in this especial phase of the condition and have attempted to evaluate the various factors responsible for this phenomenon.

Opportunity for more scientific study of the acoustic phenomena of the heart in general has been made possible through more recent developments in the field of phonocardiography; amplification of the heart sounds and their graphic representation have opened new vistas of approach to a domain formerly dependent on strictly individualistic interpretation. With simplification of the apparatus and more uniform standardization of results, the phonocardiograph now offers to the clinician permanent records of the phonodynamic activity of the heart uninfluenced by the vagaries of personal equation. It is not our intention in a paper of this scope to enter into the scientific minutiae, nor is it our purpose to delve deeply into the problems arising within this newer method of studying heart sounds. At the same time, much valuable information is presented to the observer in the utilization of the phonocardiographic method and without apology, therefore, we present such evidence for the reader's consideration.

Examination of the heart sounds by this method discloses the fact that normally the first sound causes a greater disturbance in wave transmission than the second; graphically this is indicated by the larger amplitude given to the sine wave. The second sound of the heart, although of somewhat longer duration, is characterized by vibrations of lesser amplitude. In figure 1 is presented a normal phonocardiogram taken by the authors' modification technic; the difference in the graphic configuration of the two tones is apparent.

Studies of the peculiarly altered quality of heart sounds, previously discussed as being such an outstanding and pathognomonic element in the syndrome of acute coronary thrombosis, when investigated phonocardiographically have revealed some new and interesting features. Most striking of these is the reversal of tonal configuration; the first sound now no longer exhibits the greater amplitude, while the second assumes the normal first sound characteristics. The time relationships are also somewhat altered in that both notes

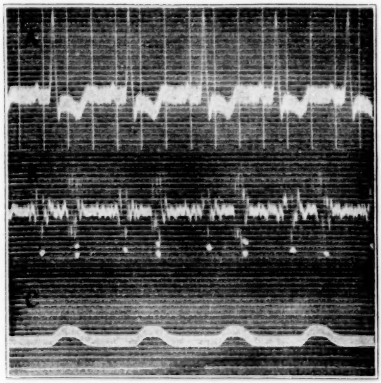

Fig. 2.—Graphic studies made in a typical case of acute coronary thrombosis. *A*, lead 1 of electrocardiogram; *B*, phonocardiogram; *C*, brachial polygram. Note the T-wave alterations in the electrocardiogram; the phonocardiographic tracings show the predominance of the second sound, which has a greater amplitude than the first and in duration is almost twice as long. A polygraphic record of the brachial artery is shown in its relation to the other events in the cardiac cycle; the poor quality of the pulse is indicated by the small excursions in the tracing.

are prolonged. This is readily perceived in figure 2, which is a graphic representation of the cardiovascular phenomena found in a typical case of acute coronary occlusion. The patient from whom these records were made was a man, aged 54, with a history of prolonged and frequent coronary seizures; during the second day of his last attack, when the clinical manifestations of the malady were at their height and failure of heart sound was marked, these studies were made.

The electrocardiogram, shown here only in lead I, exhibits classic T-wave alteration; the phonocardiogram illustrates rather beautifully the predominance of the second heart sound both in amplitude and in duration. A simultaneous polygraphic tracing of the brachial artery adds much to corroborate the clinical impression of the feeble and almost imperceptible quality of the pulse. Records such as these, expressing the electrodynamic, the phonodynamic and the hemo-

dynamic phenomena of the cardiac cycle in one unit of practical applicability, enhance to a vast degree the ordinary methods of clinical examination and do much to eliminate the elements of uncertainty of diagnosis and prognosis.

In a series of fourteen cases of acute coronary thrombosis in which heart sound failure has been a conspicuous feature, graphic methods of study have been employed; in eleven of these we have been struck by the uniform phonocardiographic alterations just described. The literature on phonocardiography is as yet too recent to carry any collateral studies on the phenomena of heart sound failure in coronary thrombosis; the available work in this field has been principally carried on in a few clinics of continental Europe, notably by Groedel and Lutembacher. In their investigations no especial attention has been focused on the altered sequence of heart sounds in the coronary syndrome; Groedel has, however, taken such records, a reproduction of which is presented in figure 3.

Utilizing the Bock-Thoma phonocardiographic equipment, Groedel in his records clearly illustrates the changes in the configuration of heart tone in this condition; in the graph presented, typical T-wave changes are seen in the electrocardiogram, and the phonocardiogram boldly confirms our observation. The second sound exhibits extreme increase in amplitude, far greater even than those obtained in our series, while the first heart sound has been reduced to an unusual degree.

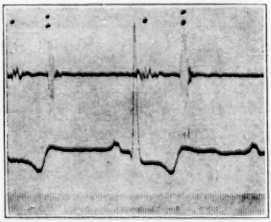

Fig. 3. — Simultaneous electrocardiographic tracing and phonocardiogram taken by the Bock-Thoma apparatus; reproduced through the courtesy of Prof. Franz M. Groedel of Bad Nauheim, Germany. Note the T-wave alterations in the electrocardiogram and the predominance of the second sound in the phonocardiographic tracing.

What is the cause of this phenomenon? What are the factors responsible for heart sound failure? What is the relation between heart sound failure as encountered in acute coronary thrombosis and the peculiar alterations in the phonocardiogram?

Approaching the problem strictly from a clinical point of view, many factors immediately clamor for consideration; not the least of these is the mechanism underlying control of blood pressure. Many have pointed out the coexisting finding of diminished quality of heart sounds and reduced levels of blood pressure; the sudden and pronounced fall in systolic blood pressure at the very onset of the attack seems to go hand in hand with the prompt enfeeblement of heart tones. The distant and almost inaudible sounds of the heart are seen almost exclusively in those instances associated with such drops. As pointed out before, the heart sounds at the apex are the first to be lost and when the basal sounds are affected it is usually the aortic that suffers the most. In such cases only one heart sound can be identified, this being maximum over the pulmonic valvular area.

Phonocardiographic studies made at the various intervals during which these changes of heart sound quality are being developed seem to show that there is a close relationship between the alterations in the phonocardiographic configuration and the heart sounds as they are elicited by the ordinary method of auscultation. What is surprising, however, is that as the condition of the patient becomes progressively worse the heart sounds appear clinically to be shorter; it was to this shortened quality that the name "tick-tack" was applied, the suggestion given by this designation being that of brief click-like sounds. Graphically, on the other hand, these sounds are revealed as being longer rather than shorter than in the normally functioning heart.

The protecting mechanism of the lowered levels of blood pressure in coronary occlusion with myocardial infarction has been amply demonstrated; as the heart is a hollow organ, weakening of its walls renders spontaneous rupture likely. With pressure diminished, however, the chances of the damaged musculature withstanding internal force are materially enhanced. At the same time, adequate pressure must be maintained in order to supply sufficient blood to distant parts; urinary suppression is not an infrequent complication because of the sharp fall in pressure. The heart walls are, therefore, set into a peculiar balance, which can be described as a ratio between internal pressure and resistant qualities of the myocardium. The propagation of the heart sounds is thus considerably altered by this change and the resonance factors responsible for the transmission of the normal heart tones are lacking.

Alterations in the intrinsic musculature of the ventricles has been found by Mond and Oppenheimer definitely to affect the character and quality of the transmission of heart sounds. Apparently, resonance factors in the heart muscle proper are dependent in great part on its functional integrity, as the normal heart muscle exerts a definite dampening effect on all sounds. If this is true, an explanation to the lengthened period of sound vibration can be given for the phenomenon developing in acute coronary occlusion. With a definitely disturbed musculature such dampening effect will be decreased, more especially so far as the second sound of the heart is concerned. This agrees substantially with the alterations seen in the phonocardiogram.

To this phenomenon of diminished audibility of the heart sounds we have applied the phrase "heart sound failure," hoping thereby to carry with this designation the concept of myocardial insufficiency and impairment translated into the terminology of the heart sounds themselves.

Such diminution in the quality and audibility of the heart sounds is not only exhibited during the acute phase of coronary occlusion but it may persist long after the patient has recovered from the initial attack; in fact, this characteristic alteration of the heart sounds may be residual for many years thereafter. Together with the peculiar pallor of coronary disease, it may bear diagnostic testimony of the patient's previous medical history.

The return of the normal heart sounds, although frequently delayed, may, however, occur during the patient's convalescence; viewed from this angle, certain prognostic conclusions are permissible. Attempts here, as elsewhere, have been made to correlate the return of sound quality with recovery of blood pressure levels. As already suggested, we have not been able to establish this relationship because many of our patients have maintained the initial drop of pressure with recovery of heart sounds. Nor have we been able to draw any especial prognostic information from the fact that the heart sounds have recovered slowly or quickly; sudden death has occurred with equal frequency in the two types of patients.

Heart sound failure may, therefore, be regarded as one of the pathognomonic signs of coronary thrombosis and when the diagnosis is rendered uncertain by the predominance of symptoms apparently arising from other sources, as, for example, from the gastro-intestinal tract, the discovery and recognition of this characteristic impairment of tone quality may go far to clear up the problem at hand. Where such "heart sound failure" persists over a long period of time, its finding arms the examiner with almost indisputable data of a previous coronary insult.

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RUPTURE OF SPLEEN IN MALARIAL THERAPY IN SYPHILIS *

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Rupture of the spleen in naturally acquired malaria is considered by Osler [1] to be a very rare complication. Manson-Bahr [2] finds that in naturally acquired malaria the mortality from ruptured spleen is only about one in every hundred thousand infections. Davidson [3] found 3 cases of ruptured spleen in 30,000 cases of malaria.

A review of the literature on malarial therapy for syphilis of the central nervous system, however, reveals a greater number of cases of ruptured spleen than would be expected, judging both from the statements referred to and from the observations of such authorities as Wagner-Jauregg (the father of induced malarial therapy), Weygandt, Driver and others. In a communication to Trömner [4] dated July 9, 1925, Wagner-Jauregg stated that, in more than 1,200 cases treated by induced malaria since 1919, neither he nor his assistants found a single case of splenic rupture. Driver,[5] in a review of the literature of 2,479 cases of dementia paralytica treated by induced malaria, including his personal series of 79 cases, describes in detail the various complications that have been observed and fails to mention rupture of the spleen. Weygandt,[3] in a summary of his experiences with malarial therapy in syphilis of the central nervous system, also fails to mention rupture of the spleen as a cause of death. Trömner, however, states that in a subsequent communication from Weygandt the latter referred to one case of this type. A similar vague reference to this complication is also made by Krumbhaar.[6] Cantacuzene,[7] in a study of 528 cases of syphilis of the central nervous system treated by induced malaria, mentions a case of death due to rupture of the spleen but does not describe the case to which he refers. Herzig [3] cites a case of induced malaria with fatal rupture of the spleen in which trauma could not be excluded as a possible etiologic factor. It is quite possible that the same case is referred to by some of the aforementioned writers. De Asis,[8] in a review of 101 cases of induced malaria, found 2 cases of ruptured spleen, full descriptions of which the author intended to submit in a subsequent publication. More detailed reports of such cases with observations at autopsy are given by Alexander,[9] Hermann,[10] Trömner,[4] Bachmann,[11] Harris,[12] Bahr and Bruetsch,[13] Clark [14] and Robins,[15] abstracts of which follow:

REPORT OF CASES

Alexander's Case: A man, aged 50, presented symptoms of dementia paralytica for several months prior to admission. He was given 5 cc. of tertian malaria subcutaneously, April 9, 1924. Ten days later he began to have rigors every second day. After eight rigors he suddenly collapsed on his bed and died soon after. At autopsy, the spleen was found to be soft and ruptured and the abdominal cavity filled with blood. The associated anatomic observations consisted of cardio-arteriosclerosis.

Hermann's Case: A man, aged 34, received his first intravenous injection of malaria, Aug. 31, 1924. The first temperature rise occurred, September 3, and the second, September 8. From then on the patient was very restless and delirious and died, September 21, during a rise in temperature. At autopsy the spleen was found to be swollen, to weigh 750 Gm., and to have a tear about 8 cm. long on its inferior surface. The abdominal cavity contained blood. Atrophy of the brain and chronic meningitis were also found. The author believes that the previous injury and the extreme restlessness of the patient during the treatment were important factors in causing the accident.

Trömner's Case: A tabetic man, aged 61, who reacted poorly to mercury and arsphenamine, received the first inoculation with malaria at the end of March, 1925. The first chill occurred six days later. Signs of weakness appeared on the sixth day of quotidian fever and the patient vomited and complained of pain in the abdomen and the left shoulder. On physical examination the spleen was found to be swollen and tender. The following day his temperature was subnormal. He collapsed twice, death following the second collapse. At autopsy the abdomen was found to contain almost a liter of blood. The spleen weighed 410 Gm. and ruptures were found on the convexity, the upper and posterior surface and the anterior surface. The latter surface was the seat of three ruptured areas, one of which was about 10 cm. long. These were covered with blood clot. Blood was found oozing from the rupture on the posterior surface. The capsule was thickened and covered with gray fibrin deposits. The pulp was red and mushy. The follicles and septums were not easily discerned. The larger vessels were unchanged. The microscopic picture was that of a typical malarial spleen with the usual pigment, destroyed erythrocytes, macrophages and malarial plasmodia. The presence of hemorrhages in the splenic tissue could not be explained since no ruptured vessel could be demonstrated. Some of the follicles showed central necrosis. The capsule was found completely torn in the ruptured areas.

Bachmann's Case: A man, aged 47, who had contracted syphilis in 1918, did not receive any antisyphilitic treatment. Sept. 18, 1926, he was inoculated with 5 cc. of blood with tertian plasmodia from a paralytic patient. For twenty-three days the patient had no fever and the blood smears were negative for malaria. October 10, he had the first chill and the blood smear showed the parasites. The temperature rose again the next day, diarrhea set in and at 6 a. m. the following day the patient became unconscious while on his way to the bathroom and died a few minutes later. At autopsy, 1,500 cc. of

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1. Osler, William; and McCrae, Thomas: The Principles and Practice of Medicine, New York, D. Appleton & Co., 1922, p. 881.
2. Manson-Bahr, Philip, quoted by Harris (footnote 12).
3. Quoted by Trömner (footnote 4).
4. Trömner, Ernst, and Baltzer, Hans: Klin. Wchnschr. **4**: 2159 (Nov. 5) 1925.
5. Driver, J. R.; Gammel, J. A., and Karnish, L. J.: Malaria Treatment of Central Nervous System Syphilis, J. A. M. A. **87**: 1821 (Nov. 27) 1926.
6. Krumbhaar, E. B., in Osler, Sir William: Modern Medicine **5**: 162, 1927.
7. Cantacuzene, J.: Bull. de l'Office internat. d'hyg. pub. **20**: 259 (Feb.) 1928.
8. De Asis, Cesareo: Malaria as a Therapeutic Agent for Paresis, Arch. Neurol. & Psychiat. **22**: 752 (Oct.) 1929.
9. Alexander, M.: Le scalpel, May 10, 1924.
10. Hermann, G.: Med. Klin. **21**: 395, 1925.
11. Bachmann, F.: München med. Wchnschr. **73**: 528 (March 26) 1926.
12. Harris, N. G.: Lancet **2**: 500 (Sept. 8) 1928.
13. Bahr, M. A., and Bruetsch, W. L.: Am. J. Psychiat. **7**: 715 (March) 1928.
14. Clark, E. A.: Ontario J. Neuro-Psychiat., September, 1929, p. 47.
15. Robins, F. C.: U. S. Vet. Bur. M. Bull. **5**: 291, 1929.

blood was found in the abdomen and a ruptured spleen, the capsule of which was torn across the whole width of the organ. It weighed 340 Gm. and was very soft in consistency. The follicles and trabeculae were indistinct. The cause of the rupture could not be discovered. The microscopic examination showed the typical macrophages with parasites, leukocytes, eosinophils, and malarial and iron pigment. The vessels showed no changes. The smear showed numerous tertian parasites in all stages. The liver also showed the typical pigmentation of malarial infection. The aorta presented evidences of syphilis.

Harris's Case: A man, aged 30, with symptoms of dementia paralytica of about four months' duration, received the first injection of tertian malaria, Dec. 6, 1928. He had ten chills and on the morning of the tenth rigor he suddenly jumped out of bed. While returning, he collapsed and died within an hour. At autopsy the abdomen was found to be full of blood. The spleen was found ruptured; it was of semisolid consistency and the blood vessels seemed to have been just torn away. No microscopic examination was reported.

Bahr's Case: A woman, aged 64, had the first chill on the sixth day after the injection with malaria. There were daily chills the following five days. The last two chills were accompanied by a temperature of only 100 F. and during those two days the patient was pale, very restless and had shallow respirations and generalized abdominal pain. She died on the morning following the last chill. At autopsy there was found a tear in the left lower margin of the spleen about 6 cm. long. A few blood clots covered the tear. The organ was firm and brittle; it weighed 220 Gm., and the capsule was partly adherent to the diaphragm. One portion of the capsule was the seat of cartilaginous changes. The thickened capsule was a hindrance to the splenic expansion, which was restrained to that portion of the capsule where the normal elasticity was retained. Here the undue swelling gave rise to the rupture. The abdominal cavity did not contain any blood.

Clark's Case: A man, whose age was not given, having dementia paralytica, was injected with malarial parasites before admission to the hospital, April 17, 1929. He had seven chills during the following thirteen days, the last paroxysm being extremely severe. May 2 he had a marked attack of weakness from which he recovered. Two hours later he sat up in bed but suddenly fell backward and died. At autopsy, blood was found in the abdominal cavity. The spleen was found ruptured, soft and very friable, and weighed 425 Gm. The tears ranged from 3 to 6 cm. in length and extended deep into the tissue. Microscopic examination showed nothing remarkable.

Robins' Case: A white man, aged 46, received the first injection, Oct. 22, 1928. He had daily chills until November 3, when he complained of pain in the lower part of the abdomen. The following day the patient developed râles in both lungs with a rapidly fatal result. At autopsy the abdomen was found to contain blood which came from a rupture in the spleen about 1½ inches long. The organ weighed about 310 Gm. and on microscopic examination showed many large wandering cells, hyperplasia and swelling of the pulp cells and splenic corpuscles. Incipient hypostatic pneumonia was also found.

Authors' Case: S. G., a white man, aged 36, contracted syphilis sixteen years before the present illness. He had received a course of antisyphilitic treatment in 1919 but his blood Wassermann reaction remained positive. For the last six months he had had progressive mental deterioration. He was admitted to the Jewish Hospital of Brooklyn, June 20, 1930, in the service of Dr. Ravich. He presented all the physical and laboratory symptoms of dementia paralytica and was transferred to the neurologic service of Dr. Rothenberg. June 26, he was given 5 cc. of tertian malarial blood intravenously. He had the first chill on the sixth day after the injection and a chill every other day during the following two weeks. After the third chill he became maniacal and had to be restrained. He gradually became stuporous, developed pneumonia, and died in coma, July 13. At no time did he present signs suggestive of hemorrhage or other pathologic condition within the abdomen, except for cyanosis which was attributed to the pulmonary consolidation. The outstanding symptoms appeared to be central in origin (stupor, dysarthria, inability to elevate the eyelids, and tremor of tongue). At autopsy the abdomen was found to contain about a liter of fluid blood, most of which was in the pelvis. A large blood clot was found covering the spleen and the upper pole of the left kidney. The spleen weighed 310 Gm. and presented several large rents through the capsule, the largest measuring about 6 cm. in length and extending deep into the pulp. This was on the diaphragmatic surface and was completely covered with an adherent blood clot which extended over two smaller tears in the upper border, between the stomach and the diaphragm. The organ was deep purple blue and the renal surface and posterior borders were the seats of two large anemic infarcts. On section there were found numerous large blood clots in the parenchyma of the spleen. These could not be traced to extend into the lumen of any vessel but were apparently extravasations into the pulp. No occluded vessel could be found in the parenchyma to explain the infarctions, nor did any of the hilar vessels show any changes. Microscopic examination showed an increase in the fibrous network, and the endothelial cells of the sinuses were found heavily laden with parasites and a marked amount of pigment, which was found to be both hemosiderin and melanin. These endothelial cells together with many wandering large mononuclear cells and extensive extravasations of blood almost destroyed the normal splenic architecture so that only few of the splenic corpuscles stood out prominently.

Among the other organs, the liver and lungs deserve especial mention. The liver showed the usual changes found in malaria; namely, parasites in the capillaries and large amounts of pigment in the Kupffer cells and endothelial cells. The lungs presented large areas of gray as well as red hepatization in all the lobes, most marked, however, in the right middle and lower lobes. Microscopically the lung parenchyma was found to be the seat of an extensive patchy infiltration with polymorphonuclear leukocytes in areas completely filling in the alveoli where a large amount of pigment and destroyed red cells are also found. Here and there broken up parasites could be discerned, some still being retained in the red corpuscles.

COMMENT

The spleen in malaria is known to be more vulnerable than normally, and hence more susceptible to spontaneous rupture. The explanation offered is that in this disease, as in some other acute infections, two important predisposing conditions exist; namely, softening and enlargement with pressure on the capsule. It is interesting to note, however, that the spleen in dementia paralytica is neither larger nor softer than the normal. On the contrary, Bigland and his associates [16] find that in more than 97 per cent of 390 cases of syphilis of the central nervous system the spleen was fibrotic and therefore harder than the normal. A study of 50 cases of dementia paralytica at Claybury Mental Hospital [17] shows that the spleen in these cases weighs even less than the normal. The average weight of the organ in the patient with dementia paralytica was found to be 159 Gm., as compared to the normal weights of from 142 to 198 Gm. as given by Woodhead [18] and 160 Gm. as given by standard textbooks in anatomy. Neither of the two conditions mentioned predisposing to spontaneous rupture of the spleen, therefore, exists in the patient having dementia paralytica.

Furthermore, if the statistics given by the foregoing authorities are correct, spontaneous rupture of the spleen in malaria should not occur more frequently than once in about 50,000 cases. It is doubtful whether up to the present time as many as 50,000 patients have received induced malarial therapy. Driver's collection, which includes the largest clinics, totals only 2,400 cases up to 1926. In spite of that, at least ten authentic

16. Bigland, P. M.; Watson, G. A., and Bigland, A. D.: Lancet **2**: 588 (Sept. 20) 1924.
17. Rudolph, G. de M.: Lancet **2**: 1057 (Nov. 22) 1924.
18. Woodhead, G. S.: Practical Pathology, Oxford University Press 1892, p. 412.

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cases of spontaneous rupture of the spleen complicating induced malarial therapy are already recorded. This does not include unreported cases and cases that have not been recognized. It must therefore be assumed that, in the patient with dementia paralytica who has received malaria, the spleen is even more vulnerable than in naturally acquired malaria. The increased susceptibility to rupture is probably due to the loss of elasticity that must accompany a fibrotic process such as has been found in the spleen in these cases. This applies to the capsule as well as to the pulp. The enlargement of the spleen is due to edema and engorgement with blood, wandering mononuclear cells and endothelial cells filled with parasites and débris of destroyed red blood cells. This apparently cannot occur within an inelastic capsule and septums up to a certain degree in the dementia paralytica patient without rupture. This may account for the greater frequency of this complication in induced malaria in dementia paralytica.

Concerning the symptomatology, it would be beyond the scope of this paper to do more than to summarize the observations in the cases described. The age of the patients ranged from 34 to 64 years. Almost all of them were men in whom the duration of the disease ranged from two months to more than eight years. The majority of the patients went into sudden collapse following an attack of severe weakness which either ensued on a chill or followed exertion, such as a jump or resisting restraint. Bachmann's patients died soon after the second chill, while in the case described by Robins the fatal termination followed the eleventh chill. Abdominal pain was present in two of the cases. In Trömner's case, Kehr's sign was present (violent pain in the left shoulder) and the patient vomited. On examination of those patients who lived long enough to be studied after the initial collapse, there was found an enlarged spleen which was tender to palpation. The temperature was subnormal in one case.

Because of the fact that this complication is so rapidly fatal in most cases, the appearance of signs of weakness and collapse should at once suggest the probability of a ruptured spleen, and confirmatory evidence (tender abdomen and enlarged spleen and signs of hemorrhage) should be sought so that no time is lost in offering surgical intervention. With the possibility of this complication being borne in mind, the confirmatory signs will undoubtedly be more frequently elicited, because all of the cases described showed blood in the abdomen and an enlarged swollen spleen.

The relatively large number of deaths from this complication indicates the need of greater caution in the use of this form of therapy. In the words of Trömner, malarial treatment of a patient having dementia paralytica is like a sword hanging over the head of the physician and the patient. Only those with a fair margin of general vitality and recuperative power should be subjected to this treatment and, as some writers have advised, subcutaneous instead of intravenous injections should be given, especially to those patients who are not good risks. Even in as hopeless a condition as dementia paralytica, no physician should allow a fatality to occur because of indiscriminate use of any therapeutic agent. It is desirable that the possibility of this complication will be borne in mind so that when this contingency does arise it will be more promptly recognized and the proper surgical treatment immediately instituted, thus preventing a fatality.

CONCLUSIONS

1. Spontaneous rupture of the spleen occurs much more frequently in cases of induced malaria for syphilis of the central nervous system than in naturally acquired malaria.

2. The usual changes predisposing to rupture, namely, enlargement and softening, are not present in spleens of patients suffering from syphilis of the central nervous system prior to induction of malaria. The increase in fibrous tissue in the capsule and septums with resultant loss of elasticity that occurs in syphilis does, however, predispose to spontaneous rupture.

3. The symptomatology of the complication is briefly described and the importance of its early recognition is emphasized.

4. A plea is made for more careful choice of patients who are to receive malarial therapy to avoid the possible fatal complication—rupture of the spleen.

PNEUMONOCONIOSIS IN IRON MINERS

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On account of lack of employment after the South African War, quite a number of miners from the Transvaal returned to England. Many of these were broken down in health. Their cases were studied by Thomas Oliver,[1] who emphasized the fact that dyspnea was the chief symptom. He noted, too, that most of these men died under 40 and urged that steps be taken to avert the loss of so many lives in the mining industry. His urgent plea was not futile. British medical literature affords striking evidence of the thoroughness with which the situation has been handled.

In America the health hazards of metal miners have not received the attention accorded other dangerous trades. According to Lanza [2] the life expectancy of a metal miner, from the time he commences hard rock mining and including one year of disability immediately preceding his death, is but 9.6 years.

Lanza has done a great deal to emphasize these hazards. He studied 433 cases of phthisis among 720 miners in the zinc mines of Missouri. Then too he was able, by a house to house canvass, to obtain a history of 198 deaths from miners' consumption in 130 of the 480 families visited. The average age at death, he found, was 36.7 years. His description of miners' phthisis is classic:

> As would be expected, the chief symptom of miners' consumption is dyspnea on exertion. The dyspnea comes on gradually, sometimes preceded by a bronchitis, more often not. As the fibrosis advances, the dyspnea increases in severity until it becomes urgent and disabling. It is conspicuous in the clinical picture because it so completely overshadows the other symptoms. The majority of the patients examined in this investigation looked well, even with severe dyspnea, and aside from this complaint many of them felt well. They were mostly big, robust men and, even when suffering from considerable disability, showed nothing in their appearance to indicate the

1. Oliver, Thomas: Gold Miners' Phthisis and Some of the Dangers to Health Incidental to Gold Mining in the Transvaal, Lancet **1**: 1677 (June 14) 1902.

2. Lanza, A. J.: Miners' Consumption: A Study of 433 Cases of the Disease Among Zinc Miners in Southwestern Missouri, J. Missouri M. A. **13**: 251 (June) 1916; Bull. 85, U. S. P. H. S., January, 1917.

fact. As their dyspnea increased from year to year, they would notice a falling off in the amount of work they could do; especially was this the case with the shovelers, who, working by the piece, usually kept a record of their work. The dyspnea was evident on exertion only. In early cases it was not so noticeable after the men had gotten "warmed up," and it was not uncommon to have them say that their wind was better underground than on the surface.

Physical examination was frequently disappointing and generally unsatisfactory, in that the physical signs were so inadequate, apparently, to account for the symptoms. Even in cases with well marked dyspnea it was not uncommon to find practically nothing on examination. This was true in all but the far advanced cases.

Miners' phthisis, then, is a lung fibrosis or pneumonoconiosis brought about by the inhalation of dust in mining. Though it is often associated with tuberculosis it is a definite clinical entity, giving rise to a group of symptoms without any tuberculosis being present. At one time it was thought that any fine inorganic dust, such as that of coal, copper, iron or iron ore, would produce a fibrosis. More recently, especially as a result of studies among miners in South Africa, this fibrosis has been ascribed to the associated silica and the condition classed as a silicosis. Pancoast and Pendergrass,[3] in fact, are of the opinion that even coal miners' fibrosis is due altogether to silica and that coal dust is relatively harmless or produces quite different effects.

In the Blue Ridge Mountains, near Roanoke, Va., are several groups of underground iron mines. These mines were operated for many years on a small scale. One group was permanently closed in 1921, the other in 1928. After these mines were closed, or while they were temporarily shut down, some of these miners worked in limestone quarries, some in coal mines, and some outdoors on farms.

The ore in these mines averaged about 39 per cent of metallic iron and 35 per cent of silica, with a trace of manganese and phosphorus. The ore was so hard as to require drilling and blasting. At first, hand drills were used; but about 1910 small air drills were introduced, and in 1915 these were replaced by larger air drills. The dust from these drills was so thick that the operators could not see a light a few feet away and their noses became stopped up after an hour or so of drilling, so that mouth breathing was necessary. At the end of the day they were covered with dust so that it was not possible to tell the color of the men or their clothes. No precautions were taken in regard to their protection from the dust. But of all the men working in the mines only the drill operators seem to have been especially troubled by it.

In this paper we present the results of a study made of seventeen of these air drill operators,[4] with especial reference to one case that we pursued more completely. These seventeen represent all the material readily obtainable. All the men had run drills from three to eight years. From eight of the seventeen we obtained complete histories and made complete physical, laboratory and roentgen examinations.

From one bedridden patient, who died later, we took only a history and made a physical examination. The histories and roentgenograms of four others, three of whom are dead, were lent us by other hospitals. Our information of three others, now dead, was obtained from their friends and the family physicians. There were four Negroes in this group of seventeen. Three of these are now dead and the one living is very dyspneic, the lungs showing marked fibrosis on roentgen examination. Of the thirteen white men, six are dead. On three of them a series of roentgenograms had been made which we were permitted to study. The first series showed a very marked fibrosis. A year later the fibrosis was about twice as great. Though in the hospital in which these plates were made it was thought that none of the process was tuberculous, one patient later showed tubercle bacilli in the sputum. Of the seven living white men, two are in fairly good physical condition, though both are slightly dyspneic and the roentgenogram shows an early fibrosis; two are moderately dyspneic; two show marked dyspnea; and one, who looks to be in perfect health, cannot walk 50 yards because of extreme shortness of breath.

These miners, who were exposed to excessive dust, soon developed a moderate cough with slight expectoration. This, however, was a somewhat variable symptom, it being absent or present only to a very slight degree in certain cases. As the fibrosis developed it sometimes became very marked with but little expectoration. In a few patients studied, the cough was asthmatic in type and accompanied by wheezing. Later on, as the lung broke down or became tuberculous, the cough was harassing and the expectoration excessive. In a few instances blood was coughed up occasionally even when it was thought that tuberculosis was not present.

After a year or so of work, slight dyspnea became apparent and was more noticeable in the early morning. As one miner expressed it, he was not able in going to work to climb up to the mines as quickly and easily as he used to. The moderate dyspnea, though, seemed not to increase appreciably for a period of from six to eight years, and the miners appeared to be in fairly good health. In those who had inhaled a sufficient amount of fine dust, however, there developed rather rapidly after from five to eight years a severe dyspnea, even though the worker had been in the open during the last few years. Several miners, indeed, developed severe dyspnea after they had been away from the dust in the mines as long as seven years. A few of these patients complained of pleural pain with respiration at times, while others complained merely of their lungs hurting.

On physical examination these patients appeared to be in excellent general health. They did not experience discomfort at rest. Their color was good, and in no case, even with the sickest, was the hemoglobin under 90 per cent (Sahli), and the red corpuscles almost always averaged over 5 million. There was no tendency to clubbing of the fingers. The examination of the chest showed little except a much diminished expansion, depending on the amount of fibrosis. In a few patients the forced expansion was less than one inch with little abdominal breathing. The percussion note was sometimes a little duller and the breath sounds distant, but these did not indicate the marked changes brought out by roentgenograms. The heart sounds, moreover, were generally weak and distant, with no accentuation of the pulmonic second sound. The roentgenogram showed a heart almost uniformly smaller than the average and somewhat of the drop type. The electrocardiograms showed in all three leads a weak muscle with no left ventricular preponderance. The blood pressure, too,

3. Pancoast, H. K., and Pendergrass, E. P.: Pneumoconiosis, New York, Paul B. Hoeber, 1926.

4. Acknowledgment is made of material furnished by Dr. E. W. Dodd, Buchanan, Va.; Drs. W. E. Brown and F. B. Stafford, Blue Ridge, Va., and Dr. J. C. Flippin, University, Va., in the study of some of these cases.

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in all cases was low, averaging about 100 mm. systolic. These low blood pressures, it may be noted, are not in accord with other writers.[5] There were no especial urinary changes.

Two patients of this group had edema of the feet at times. One other, who developed generalized edema, was regarded by his family physician as having heart trouble; yet when we examined him later his heart seemed fairly normal. One patient, a Negro, had apoplexy some time after the onset of the severe dyspnea and cough. Later the expectoration became excessive, as a result of the breaking down of lung tissue.

REPORT OF CASE

One of these air drillers, D. F. D., aged 46, was seen in consultation, Oct. 14, 1927. At that time he was thought to have pneumonia. Although he started to work in the iron mines at the age of 17, he was not so much exposed to heavy dust until he began to operate an air drill in 1915, and from then up to 1921, excepting one year, he ran an air drill almost continuously. In 1921 he left the mines and had not been exposed to dust since. In 1920 he had influenza. Little dyspnea appeared until the summer of 1927, when he began to lose weight and strength and experienced some pain in the small of his back. There was no cough and he continued to work hard on the farm until September, 1927, when he had something like influenza with a cough and expectoration of "ore dust." At about this time the cough became marked, with much expectoration, which had a foul odor. His temperature was high.

On physical examination, the patient appeared acutely ill. There was marked dyspnea, and cough. On the left side, expansion was greatly diminished. The left apex was almost flat on percussion and the breath sounds were diminished over the entire left lung. The roentgenogram showed a marked bilateral lung fibrosis with a large abscess at the top of the left lung. The sputum showed large brown granules and reacted strongly to the simple iron tests. About sixty smears were stained for tubercle bacilli; all were negative. Also a guinea-pig was inoculated with 1 cc. of sputum that had been treated with antiformin. Autopsy of the pig at the end of six weeks did not show any tuberculous involvement.

An attempt was made to collapse the left lung, but this failed. A little later the abscess was drained through the second interspace anteriorly. The patient left the hospital in a fairly good condition. Later the old drainage tract broke down, leaving a bronchial fistula but no discharge. He lost weight from 145 to 102 pounds (66 to 46 Kg.) and gradually failed in health and strength until his death, Feb. 9, 1930. Except during the acute illness in 1927 there was practically no cough.

A partial autopsy was obtained. The heart was very small. The lungs were everywhere adherent to the chest wall and were small, black, almost without structure and looked like rotten rubber. They did not show the brick red appearance as noted by others. A sample of the lung tissue teased out showed many dark brown granules arranged in heavy clusters. These clusters were so thick as to make up almost the mass of the lung. The granules were about the size of a coccus. It was not possible to demonstrate any silica crystals even by refracted light. The microscopic sections of the lung showed a fibrosis with scarcely any alveoli remaining. There were many amorphous blackish brown pigment granules, free and also apparently in the cells.

A sample of this lung tissue, which had been preserved in formaldehyde solution, was dried at 100 C. This yielded 3.6972 Gm. When this was ignited in a muffled furnace, in platinum, it yielded 0.3172 Gm. of ash. The analysis[6] of this ash showed silicon dioxide, 17.28 per cent; ferric oxide, 51.58 per cent; phosphorus pentoxide, 19.31 per cent. Calcium, magnesium, potassium and sodium were present in traces only.

Because the analysis showed an unusual amount of phosphorus, duplicate determinations were made. The second analysis agreed with the first.

CONCLUSIONS

From these facts it becomes apparent that:

1. Operators of air drills working four or five years in an atmosphere heavily laden with iron ore and silica dust may develop distressing symptoms of lung fibrosis after they have discontinued mining and have lived from four to eight years in apparently good physical and hygienic conditions.

2. The fact that such operators at the time of their retirement from years of exposure to iron and silica dust have no symptoms may have but little bearing on the future progress of their disease.

3. This form of lung fibrosis is not merely a cumulative action of dust but is a result, a stage of the disease which requires for its development a certain amount of time after the heavy inhalation of dust.

4. This marked secondary fibrosis is comparatively rapid in its development.

Medical Arts Building.

5. Pulmonary Silicosis and Tuberculosis in Western Australia, Australia Letter, J. A. M. A. **92**: 248 (Jan. 19) 1929.

6. The analysis was made at the Virginia Experiment Station, Blacksburg, Va., under the supervision of Dr. W. B. Ellett, chemist.

OCCUPATIONAL NYSTAGMUS IN TRAIN DISPATCHERS *

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CINCINNATI

Occupational nystagmus has long been regarded as essentially nonexistent in this country. However, among jewelers, draftsmen, hand compositors, and similar close work tradesmen, nystagmus has occasionally been encountered; but none has been noted among miners, in which work group this disease is so highly prevalent in England and on the continent.

In 1920, Shufflebotham,[1] addressing the International Public Health Congress in Brussels, maintained that miners' nystagmus "is the commonest occupational disease known to medical science." He cited in evidence the Home Office compensation figures, showing that in 1914 there were 6,000 British miners under compensation for this disease, 2,775 of whom were totally incapacitated. The British Medical Research Council appointed a miners' nystagmus committee, which in 1922 and 1923 made reports regarding the various causative factors of the condition, together with excellent descriptions of nystagmus in its several forms and degrees of severity. Thomas[2] has recently made a study of 512 English miners with nystagmus, with reference to incapacity for work. His conclusions embrace the following statement: "The average case of miners' nystagmus, if observed over a period of about nine years after [first] becoming incapacitated by the disease, may be expected to [further] work underground for about three years, and [then] to be totally incapacitated for about two years."

* Read before the American Public Health Association (Industrial Hygiene Section), Oct. 30, 1930. Based on an extended report entitled "Physical and Mental Impairment Among Train Dispatchers," prepared for the American Train Dispatchers Association.

1. Shufflebotham, Frank: The Place of Industrial Medicine in Medical Science, J. Indust. Hyg. **2**: 253 (Nov.) 1920.

2. Thomas, J. W. T.: Miners' Nystagmus and Incapacity for Work: A Clinical Study Based on an Analysis of 512 Cases, J. Indust. Hyg. **12**: 1 (Jan.) 1930.

Contemporary opinion is that miners' nystagmus is the result of overwork of the visual apparatus during long periods of work in partial darkness. Examination of miners in this country has not led to the detection of any nystagmus. Lane and Ellis [3] examined the eyes of 500 Illinois coal miners without locating a single case. Hayhurst and his associates,[4] working in Ohio and Illinois, were likewise unable to detect any miners' nystagmus, and concluded that better illumination probably explained its absence.

Occupational nystagmus has, however, recently been detected in high incidence among railway train dispatchers in this country. The American Train Dispatchers Association arranged in 1929 for an investigation of the hazards of this occupation, undertaken because mortality records indicated an average age at death of 50.17 years, which was regarded as low, in view of the fact that this occupation is entered fairly late in life, after previous experience in train movements, usually as telegraph operators. During the years 1929 and 1930, studies pertinent to this problem have been carried out in New York; Jersey City; Birmingham, Ala.; Omaha, and Covington, Ky. A group of 1,068 factory workers examined in Cincinnati in 1929-1930 were used for control purposes. One hundred and sixty-five train dispatchers were examined. The study in each instance embraced: complete physical examination of all systems and organs; special neurologic examination; special examination for conditions of the eye grounds; special examination for nystagmus; routine urinalysis; routine multiple blood counts; routine Wassermann tests (the two latter in New York and Jersey City only); Otis mental test; Laird personal inventory; complete medical, social and work history; special examinations, such as basal metabolism rates, and roentgen examination, only as indicated.

At the outset, examinations for nystagmus were not included, but early in the study nystagmus was repeatedly observed in the course of routine examinations. Only in Birmingham, Omaha and Covington were systematic examinations made. These revealed an incidence of 67 per cent among 121 examined. In New York and vicinity, 30 examinations were made among 44 train dispatchers; 22 of these (or 70 per cent) showed nystagmus. In that city certain examinations were made prior to and just after the work period. The nystagmus was more highly prevalent, and in a more readily detectable form, at the end of the work period.

TABLE 1.—*Occupational Nystagmus* *

Age Groups	Below 25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	Total	Per Cent of Total	Per Cent of Base
I. Normal	0	1	0	4	14	8	3	6	1	1	38	31.4	
Per cent of total	0	33.0	0	23.5	43.8	32.0	15.7	60.0	14.3	25.0			
Total presenting nystagmus	0	2	4	13	17	16	16	4	6	3	81	67.0	
Per cent of total	0	67.0	100	76.5	53.1	64.0	84.3	40.0	85.7	75.0			
II.	0	0	0	0	1	1	0	0	0	0	2	1.7	
Per cent of total	0	0	0	0	3.1	4.0	0	0	0	0			
III. a x	0	0	0	0	3	5	3	1	0	0	12	....	14.8
III. a z	0	0	0	1	0	0	0	0	0	0	1	....	1.2
III. a x y	0	0	0	0	2	0	1	0	0	0	3	....	3.7
III. d x	0	0	0	0	0	1	0	0	0	0	1	....	1.2
IV. a x	0	0	0	0	0	1	1	1	2	1	6	....	7.4
V. a x	0	0	1	5	8	6	6	0	2	0	29	....	35.8
V. a y	0	1	2	3	3	2	1	0	2	0	14	....	17.3
V. a z	0	1	0	1	0	0	0	1	0	0	3	....	3.7
V. a x y	0	0	1	2	0	1	2	0	0	0	6	....	7.4
V. d z	0	0	0	0	1	0	0	0	0	1	2	....	2.5
V. d x	0	0	0	0	0	0	0	0	0	1	1	....	1.2
V. d x y	0	0	0	0	0	0	1	0	0	0	1	....	1.2
V. d y z	0	0	0	1	0	0	0	0	0	0	1	....	1.2
Unestablished	0	0	0	0	0	0	1	1	0	0	2	....	2.5
Total in group	0	3	4	17	32	25	19	10	7	4	121	100.0	

* The accompanying key explains the significance of numerals and letters.

CLASSIFICATIONS WITH REFERENCE TO NYSTAGMUS

I, normal persons.

II, persons with undemonstrable nystagmus at time of examination, who give good history of dizziness or related symptoms, closely associated with work, and unexplained on any other basis.

III, persons in whom nystagmus may readily be induced by simple movements of the head or change of position. Does not include those cases brought on by whirling, temperature changes, or any other known producers of nystagmus in normal persons.

IV, persons in whom nystagmus is present at examination, but in whom the condition is transitory or barely detectable.

V, persons presenting clear-cut nystagmus (not accounted for by middle ear or other nonoccupational conditions).

VI, persons with clear-cut nystagmus in whom middle ear or other diseases or conditions may be the cause or contribute to the cause or severity.

a, opposite any appropriate numeral above, indicates a horizontal nystagmus.

b, opposite any appropriate numeral above, indicates a vertical nystagmus.

c, opposite any appropriate numeral above, indicates a rotary nystagmus.

d, opposite any appropriate numeral above, indicates a mixed nystagmus.

x, opposite any appropriate numeral above, indicates a slow nystagmus (less than 50 movements per minute, always approximated).

y, opposite any appropriate numeral above, indicates a medium nystagmus (from 50 to 100 times per minute, always approximated).

z, opposite any appropriate numeral above, indicates a rapid nystagmus (150 or above, always approximated).

Certain letters in the table may indicate the existence of both a slow and a fast nystagmus, referring to the difference in the two eyes.

NATURE OF THE EXAMINATION

One hundred and twenty-one examinations were conducted by a neurologist, who made observations for spontaneous nystagmus and sought to bring it out by the simple motion of objects in front of the eyes, which, ordinarily, will not elicit a nystagmus in a normal person. He included eyegrounds, blepharospasm observations, thermal tests and Bárány whirling tests in selected cases. In all instances he sought to rule out middle ear disease as a source of the nystagmus detected.

TYPES OF NYSTAGMUS

Based on the direction of abnormal eye movements, nystagmus may be: horizontal, vertical, rotary or circumductory and mixed.

It is noteworthy that practically no rotatory or circumductory movement has been noted. This form is

3. Lane and Ellis: Report of Illinois Commission on Occupational Diseases, January, 1911, p. 155.

4. Hayhurst, E. R., and others: Health Hazards and Mortality Statistics of Soft Coal Mining in Illinois and Ohio, J. Indust. Hyg. 1:360 (Nov.) 1919.

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characteristic of miners' nystagmus. Train dispatchers' nystagmus is characterized by a horizontal movement, with occasional instances of vertical or mixed. Bárány's [5] "railroad nystagmus" is primarily horizontal.

Nystagmus may exist in one eye, without involvement of the other, and the rates of motion in the two eyes may be different.

AGE DISTRIBUTION OF TRAIN DISPATCHERS WITH NYSTAGMUS

The train dispatcher, ordinarily, enters on his work between the years from 30 to 35. At the present time there is a tendency for younger men to be accepted as train dispatchers, as a previous experience as telegrapher is not now requisite, owing to the fact that train dispatching is now largely performed by telephone. The younger men among train dispatchers, without experience as telegraphers, are mostly recruited from tower men, where no known exposure to conditions producing nystagmus exist. The work of the telegrapher is sometimes so similar to that of the train dispatcher as to provide some exposure to nystagmus-producing circumstances.

din characteristic of most train dispatching offices is responsible for some impairment in the hearing. Much of the hearing by train dispatchers of telephone messages is by bone conduction. They themselves state that they hear better in the midst of the din of their work places than they do at home or at other places away from work. Since aural disease is a prime factor in the production of nonoccupational nystagmus, and since a high incidence of deafness was detected, as shown in table 3, it was anticipated that there might be some relation between train dispatchers' nystagmus and train dispatchers' occupational deafness. Table 3 presents observations which indicate that nystagmus is approximately as frequent among those who are not deaf as among those who are.

CAUSES OF TRAIN DISPATCHERS' NYSTAGMUS

The American train dispatcher is responsible for all train movements, including passenger, freight, special and work trains. He records all on his train sheet, receives and dispatches reports of locations of trains from all operators on his division, initiates orders for train movements, and records hours of duty of crews.

TABLE 2.—*Nystagmus Among Train Dispatchers in Relation to Length of Time in Service*

Age Groups	Below 25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	Total	Per Cent of Total	Per Cent of Base
1-4 years	0	2	0	0	0	0	0	0	0	0	2	1.6	
With nystagmus	0	1	0	0	0	0	0	0	0	0	1	0.8	50.0
Without nystagmus	0	1	0	0	0	0	0	0	0	0	1	0.8	50.0
5-9 years	0	1	4	4	3	3	2	0	0	0	17	14.0	
With nystagmus	0	1	4	3	1	1	2	0	0	0	12	9.9	70.6
Without nystagmus	0	0	0	1	2	2	0	0	0	0	5	4.1	29.4
10-19 years	0	0	0	13	20	14	5	3	0	0	55	45.5	
With nystagmus	0	0	0	10	12	8	4	2	0	0	36	29.8	65.5
Without nystagmus	0	0	0	3	8	6	1	1	0	0	19	15.7	34.5
20-29 years	0	0	0	0	9	8	8	5	3	1	34	28.1	
With nystagmus	0	0	0	0	5	6	6	1	3	0	21	17.4	61.8
Without nystagmus	0	0	0	0	4	2	2	4	0	1	13	10.7	38.2
30-39 years	0	0	0	0	0	0	3	1	2	1	7	5.8	
With nystagmus	0	0	0	0	0	0	3	0	2	1	6	4.9	85.7
Without nystagmus	0	0	0	0	0	0	0	1	0	0	1	0.8	14.3
40-49 years	0	0	0	0	0	0	0	0	2	2	4	3.3	
With nystagmus	0	0	0	0	0	0	0	0	1	2	3	1.6	75.0
Without nystagmus	0	0	0	0	0	0	0	0	1	0	1	0.8	25.0
Unknown	0	0	0	0	0	0	1	1	0	0	2	1.6	
Total in group	0	3	4	17	32	25	19	10	7	4	121	100.0	

NYSTAGMUS AMONG TRAIN DISPATCHERS, IN RELATION TO LENGTH OF TIME IN SERVICE

Unlike miners' nystagmus, which apparently requires some such period as twenty years (average, twenty-seven years) for full development, train dispatchers' nystagmus may arise after short periods of exposure (from one to two years), but apparently does not progress to the state of total disability as frequently as is true for the miner.

NYSTAGMUS AMONG TRAIN DISPATCHERS AND DEAFNESS

As a second occupational disease of train dispatchers, a high incidence of deafness was detected, particularly in the left ear. The accompanying table indicates the incidence of deafness by age groups, with a total of 56.2 per cent.

The wearing of close-fitting receiving apparatus over the left ear, with a continuous inpouring of sound waves, is accepted as the source of increased deafness in the left ear over the right, but the general noise and

In order to carry out these and many other functions, he is in continuous communication with operators throughout his trackage. One dispatcher, at times, may be responsible for 800 miles of track, although this is unusual. Under unusual circumstances, 200 telephone calls an hour may come to him from the various persons who have access to him through telephone or telegraph wires. The majority of these call for decisions involving life and death for passengers or for crews. The average item of work per minute for the several railroads investigated by us was found to be 2.1. All of these are recorded on a train sheet. This sheet (about 5 to 9 feet by 2 to 3 feet) is ruled in both directions, into approximately 4,000 small rectangles, which are related to stations, trains and crews. The majority of the calls received lead to entries in these train sheet columns. Under conditions of normal flow of work, this sheet is continually being moved back and forth, and up and down, under the eyes of the dispatcher; he at the same time engages in some additional motion both of his head and of his eyes. This continuous motion of eyes and head and train sheet apparently produces undue strain on the ocular mechanism, resulting in a nervous syndrome characterized by nystagmus, blepharospasm and visual defect. Apart from visual

5. Bárány, Robert: Ocular Nystagmus and Railroad Nystagmus, Upsala Läkaref. förh. **26**: 1 (Sept. 1) 1921; abstr. J. A. M. A. **77**: 1457 (Oct. 29) 1921.

impairment from other causes, the entire manifestation may be regarded as related to visual fatigue from overworking of the eyes in this occupation.

COMMENT

In addition to occupational nystagmus and deafness among train dispatchers, large numbers of other abnormalities were observed, such as an 81.8 per cent incidence of cardiovascular disease. Altogether, 93.3 per cent of the train dispatchers were accepted by the examiners as having significant deviations from the normal in mind or body or both.

It would appear that the nystagmus may fit into a general fatigue syndrome characterized by (1) nystagmus, (2) intention tremors, (3) tremors of other portions of the body, such as the eyelids, (4) tachycardia or brachycardia, (5) anxiety neuroses, and (6) vasomotor disturbances.

Thomas [2] maintains that, if abnormal movements of the eyes are present, this in itself is evidence of nystagmus. "But," he continues, "in many cases, oscillations of the eyes may not be found, and other symptoms have to be considered." In discussing other symptoms, he says: "The cases cited show how important is the general nervous system in its relation to the problems of miners' nystagmus. In a number of cases the oscillations of the eyes clear up, leaving a neurasthenia, which owes its inception primarily to nystagmus. I have been able to observe cases over a period of years and have noted the change.

"At first there are oscillations of the eyes, with no general nervous signs. Later, the knee jerks become increased, and the symptoms complained of more general, such as sleeplessness, becoming easily excited, and easily startled, with various apprehensions. In the course of another year or so, symptoms of nervousness, tachycardia, giddiness, and intolerance of light become still more pronounced."

Our similar observations which we have mentioned as constituting a fatigue syndrome may, in fact, be closely akin to these manifestations described by Thomas as part of nystagmus, with or without abnormal eye movements.

In one instance a train dispatcher who had not followed this occupation for eight years was found still to exhibit a nystagmus.

The severity of the nystagmus was in no case such as to constitute total disability, although the total physical condition of many train dispatchers was such that they should not then have been at work, and some question is warranted as to the justification of employing such persons on activities involving the lives of the traveling public and train crews.

Divers psychologic, mental and neurologic tests and examinations led to the opinion that 65.3 per cent of these train dispatchers exhibited deviations from the normal mental state, of which anxiety neurosis appeared to be the most common. Anxiety neuroses are a natural product of the usual stress and strain incident to the responsibilities of train dispatching in safely moving the trains.

For specific control purposes, examinations were made of information booth workers in the Grand Central Terminal in New York. It was reasoned that in the use of eyes, in running them up and down time tables for several hours a day, the same fatigue phenomenon would exist among these men as among train dispatchers, but without the stress and strain of responsibility for train movement. Among six information boothmen, two presented a nystagmus. Examinations of 1,068 male factory workers, carried out by the same examiners during the same period, did not disclose nystagmus.

SUMMARY

Among the 121 train dispatchers examined, in widely separated sections of the country, and from seventeen railroads, occupational nystagmus has been detected, involving 81 individuals, or 67 per cent. In addition, in two cities, among 30 persons examined, 22, or 70 per cent, presented this condition.

The nystagmus found was essentially all horizontal, with marked variation in the rate of motion, and with some variation in the rates for the two eyes.

This train dispatchers' nystagmus appears to be unassociated with aural conditions, although occupational deafness of 56.2 per cent has been noted, which is more commonly present in the left ear, on account of the wearing of the hearing mechanism on that ear. It is believed that the noises common to train dispatching are responsible for the occupational deafness.

The nystagmus encountered among train dispatchers is accepted as occupational in origin and is attributed to the continual motion of the large paper train sheet beneath the eyes, and the movement of the head and eyes over the train sheet, both necessary in the continual recording of data concerning train movement.

It is maintained that the high frequency of the use of eyes in connection with train sheet work leads to overworking of the ocular mechanism, resulting in a nervous syndrome characterized by nystagmus, blepharospasm, some visual impairment, and ocular discomfort.

This occupational nystagmus of train dispatchers is less severe than the average of miners' nystagmus, and no case has been encountered that in itself was to be accepted as the cause of total disability.

34 West Seventh Street.

TABLE 3.—*Defective Hearing in Relation to Nystagmus* *

Age Groups	Below 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+	Total	Per Cent of Total
Total with normal hearing	0	2	2	9	15	13	6	4	1	1	53	43.8
Per cent of total	0	67.0	50.0	52.9	46.9	52.0	31.6	40.0	14.3	25.0		
Total with defective hearing	0	1	2	8	17	12	13	6	6	3	68	56.2
Per cent of total	0	33.0	50.0	47.1	53.1	48.0	68.4	60.0	85.7	75.0		
Total with abnormal hearing presenting nystagmus	0	0	2	6	9	8	8	2	3	3	41	33.9
Total with abnormal hearing not presenting nystagmus	0	1	0	2	8	4	5	4	3	0	27	22.3
Total with nystagmus presenting deafness	0	0	2	6	9	8	8	2	3	3	41	33.9
Total with nystagmus not presenting deafness	0	2	2	7	8	8	8	2	3	0	40	33.1
Total in group	0	3	4	17	32	25	19	10	7	4	121	

* New York and vicinity group not included.

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IRON AND COPPER IN THE TREATMENT OF ANEMIA IN CHILDREN *

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In May, 1928, Hart, Steenbock, Waddell and Elvehjem [1] reported a series of observations on the rat in which they showed that iron was inadequate to bring about regeneration of hemoglobin, but on the addition of a small amount of copper regeneration took place rapidly. The importance of the rôle of copper as an adjunct to iron was discovered only after careful elimination of other possible factors. Since then they [2] have shown conclusively that copper plays a unique part in hemoglobin response.

McHargue, Healy and Hill [3] state that copper has an important function in the formation of hemoglobin.

Elden, Sperry, Robscheit-Robbins and Whipple [4] admit that certain metals and their salts when added to the standard diet have a distinct influence and increase the production of hemoglobin. The feeding of copper and iron combined may at times have an unusually favorable effect or again may not exceed the favorable influence of the feeding of iron salt alone. The Rochester investigators believe that the evidence now available for secondary anemias points to a group of substances rather than one single substance as being responsible for the increased hemoglobin reproduction in experimental anemia.

Flinn and Inouge [5] indicated in their experiments that copper may play some important rôle in stimulating the function of the blood and exerts an important influence on the hematopoietic system and on the metabolism of the body as a whole.

From the foregoing experiments, it can be concluded that copper and iron have a definite bearing on blood regeneration in anemia in animals but so far as we can ascertain this combination has never been reported in the treatment of anemia in children. In June, 1928, soon after the Wisconsin investigators announced that copper in association with iron had a specific function of hemoglobin regeneration, my colleagues and I became particularly interested in the possible response of this combination in secondary anemia in children.

About the time our investigation was completed, Josephs [6] read a paper in Miami before the Southern Medical Association, in which he called attention to the possible value of iron and copper in the treatment of certain types of anemia in children.

Recently, Mills [7] has shown beneficial results of such a combination in ten adults with idiopathic anemia of the hypochromic type. He used a capsule containing mass of ferrous carbonate, 0.2 Gm., copper sulphate 1.5 mg., and phenolphthalein 0.017 Gm. Three capsules were prescribed daily.

As there is still some controversy in the literature as to the effects of iron in the treatment of anemia in children, it occurred to us that it was of considerable importance to determine whether the effect of iron could be enhanced by the addition of copper and it was felt that a study of the therapeutic action of these two elements may help to demonstrate their value or lack of value as possible therapeutic agents in the treatment of anemia in children. Since the experimental evidence indicates that copper is widely distributed in the animal body and in foods, and is definitely a constituent of the liver, it must be regarded as an element of importance in iron metabolism.

This study is based on observations in thirty-four children with secondary anemia treated during the past two years with iron and copper.

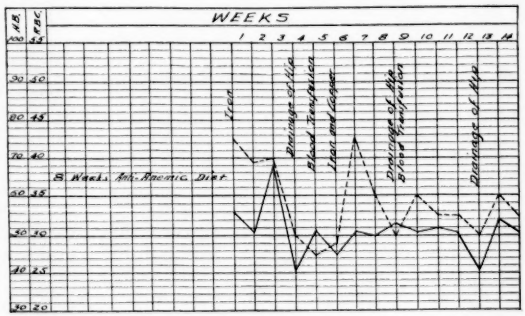

Chart 1 (case 1).—Result in case of secondary anemia due to tuberculosis of hip, treated with antianemic diet, iron, copper, drainage of hip and blood transfusions with no improvement in blood picture. In the charts the solid line denotes red blood cells; the broken line, hemoglobin.

The patients studied in this investigation included those who were confined to the wards of the Tennessee Children's Home, Nashville, Tenn. All were observed for a sufficient length of time (three weeks or more) before treatment was started and for a sufficiently long time afterward. The hemoglobin and red blood cells were determined weekly. The ages of the children varied between 6 months and 7 years.

In our investigation we used saccharated ferrous carbonate in amounts varying from 15 to 60 grains (0.1 to 4 Gm.) daily, and copper sulphate, 0.5 per cent solution, from one to two teaspoonfuls three times a day.

As all cases were observed for a sufficient length of time before treatment was begun, we felt fairly safe that any effect the diet may have would show in this time.

The estimations of hemoglobin and red blood cells were made weekly during this observation period. The rate of increase of hemoglobin and red blood cells was then compared with the rate of increase during the administration of iron alone, and then during the administration of iron and copper.

* From the Tennessee Children's Home Finding Society.

* Read before the Davidson County Medical Society, May 18, 1930.

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5. Flinn, F. B., and Inouge, J. M.: Some Physiological Aspects of Copper in Organism, J. Biol. Chem. **84**: 101 (Oct.) 1929.

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We are aware of the difficulties and sources of error in computing the weekly increase in the hemoglobin and erythrocyte counts in various children, and in drawing conclusions from the results. This is particularly true since the rate of spontaneous recovery varies in different children and under various circumstances. For example, it is well known that both man and animals with acute posthemorrhagic anemias recover as rapidly without the addition of iron or other substances to the diet as they do with it. However, this is not true of the chronic nutritional anemias. Here the effects of therapy can be demonstrated conclusively. In determining the value of any treatment of anemia in man, the increase in the hemoglobin and red blood cells must be followed before and after treatment and the results compared.

It is well known that children with moderately severe secondary anemia have a tendency to recover spontaneously without the addition of iron, but with a sufficient control period before treatment was begun it was thought that if the iron and copper mixture had any therapeutic value it would show definitely in a short time after the addition of the mixture to the diet.

It is not to be denied that an infant with moderately severe anemia, particularly if vegetables, eggs and broths are added at 8 months of age, will improve under dietetic treatment only. But the response to this therapy is slow, not a matter of weeks but of months; whereas iron and possibly copper hasten and complete the process.

Iron was given alone for from two to four weeks for further control and the copper sulphate was then added. It may be seen that the hemoglobin regeneration and the response of the red blood cells was definite but not so definite as when copper supplemented the iron. The response was much more striking in some cases than in others, but a definite response is clearly seen. It is even more striking when compared with the hemoglobin and red blood cells during the control period prior to the administration of iron and copper.

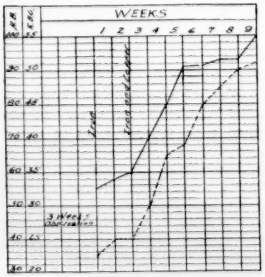

Chart 2 (case 2).—Result in case of nutritional anemia showing very little response to iron but rapid response on the addition of copper sulphate.

The relation of anemia, iron and copper therapy and infection may be illustrated by the five cases of infection in our series. Iron and copper given in large doses during the period of infection failed to produce any appreciable increase in the hemoglobin and red blood cells; after the subsidence of the infection the hemoglobin and red blood cells rose gradually to normal. There were five cases of anemia due to infections of various sorts that did not show any marked response until the foci of infection were removed. In one case the anemia was associated with tuberculosis of the hip. In this case practically no response was seen and only temporary response was seen after repeated blood transfusions. Two cases of upper respiratory infections with bilateral otitis media showed very little response until the infection subsided. Two cases of osteomyelitis of the femur showed similar results to the other cases of infection.

It is well known that any therapeutic agent has little effect on blood regeneration in the presence of infections and this is probably the reason that we did not get any particular response during our iron and copper administration. These cases, of course, are best treated by eliminating the cause and not by the administration of any therapeutic agent.

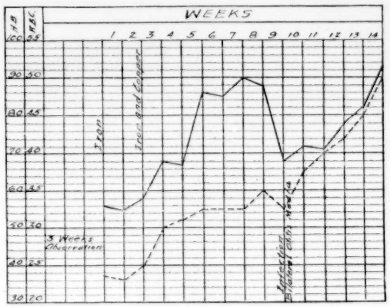

Chart 3 (case 3).—Result in case of nutritional anemia showing slight response to iron but rapid response on the addition of copper sulphate until an infection intervened with subsequent drop in hemoglobin and red blood cells. After infection subsided there was a rapid return to normal.

REPORT OF CASES

CASE 1.—H. T., aged 7 years, had tuberculosis of the lip. An antianemic diet was given, consisting of eggs, liver, beef and green vegetables, without any effect on the blood picture for eight weeks. At the end of that time the hemoglobin was 75 per cent and the red blood cells numbered 3,300,000. Iron was given, 20 grains (1.3 Gm.) three times a day for four weeks, without any effect. Drainage of the hip and blood transfusion were done three weeks after the iron was started, with little if any effect. At the fifth week, copper was added to the iron and during the first week there was a marked increase in the hemoglobin but little response in the red blood cells. Another blood transfusion with drainage of the hip was done on the eighth week, with slight response; but at the end of fourteen weeks the hemoglobin and red blood cells were 55 per cent and 3,050,000, there being no response from iron and copper or blood transfusions.

The cases of nutritional anemia show strikingly the effects of the addition of iron and copper to the diet. Clinical improvement in the nutritional cases was usually manifested in the first two weeks of treatment; the earliest sign was the increase in appetite and subsequent gain in weight and general well being. The rate of increase of the hemoglobin and red blood cells of the children with nutritional anemia are shown in the accompanying charts. They are not picked cases from our series but are representative of the whole series. Inspection of the charts shows the rapidity with which the red blood cells and hemoglobin increased, and the level they attained at the end of one month, two months and longer, after treatment was begun.

In each case of nutritional anemia, following the addition of copper to the iron, a prompt increase in the number of erythocytes was seen, the count rising to an average between four and five million within from six to eight weeks. The hemoglobin increased somewhat more slowly, but definitely; the increase occurred in the opposite way in a few cases.

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CASE 2.—Bob D., aged 14 months, presented signs of anemia. The hemoglobin and the red blood cells were 35 per cent and 3,250,000. They remained practically stationary during the period of observation before the treatment was started. Then 10 grains (0.65 Gm.) of saccharated ferrous carbonate was given three times a day for two weeks, with a slight rise in both the hemoglobin and the red blood cells to 40 per cent and 3,500,000. At the end of two weeks, copper was added, 1 drachm, (4 cc.) three times a day, of a 0.5 per cent solution and during the subsequent weeks a more rapid rise in the hemoglobin and red blood cells was seen until the tenth week of observation, when the hemoglobin and red blood cells reached the normal limits of 90 per cent and 5,500,000, respectively.

CASE 3.—Dave, aged 15 months, had a hemoglobin estimate of 37 per cent; the red blood cells numbered 3,300,000. At the end of a three weeks' observation period there was no change in the blood picture. On the addition of saccharated ferrous carbonate, 10 grains (0.65 Gm.) three times a day for two weeks, the hemoglobin and red blood cells had risen to 40 per cent and 3,400,000, respectively; then on the addition of copper, 1 drachm, (4 cc.) three times a day, the hemoglobin and red blood cells rose rapidly until the ninth week, when a bilateral otitis media intervened and the red blood cells dropped from 4,900,000 to 3,900,000 and the hemoglobin dropped from 60 per cent to 55 per cent. After the subsidence of the infection the hemoglobin and red blood cells gradually rose until the fourteenth week, when the hemoglobin was 90 per cent and the red blood cells numbered 5,100,000. In this case it is seen that the hemoglobin rose more gradually than the red blood cells and that both were definitely affected during the infection.

CASE 4.—Cecil, aged 8 months was anemic. There was a four weeks' observation period before any treatment was started, at the end of which time the hemoglobin was 33 per cent and the red blood cell count was 3,450,000. Saccharated ferrous carbonate, 5 grains (0.3 Gm.), was given for two weeks, at the end of which time the hemoglobin and red blood cells were practically the same, no response having been obtained. Copper was added in a 1 drachm (4 cc.) dose three times a day. A gradual increase in the hemoglobin and red blood cells was seen and by the ninth week the hemoglobin was 85 per cent and the red blood cells numbered 5,050,000. Estimates of hemoglobin and red blood cells were taken two months later and were found to be 85 per cent and 4,700,000, respectively.

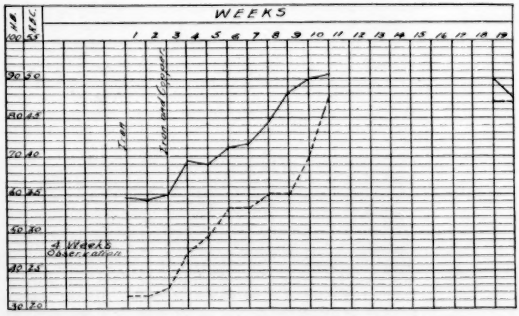

Chart 4 (case 4).—Result in case of nutritional anemia showing no response to iron but immediate response on the addition of copper sulphate.

CASE 5.—Maxey, aged 18 months, showed symptoms of anemia. After four weeks' observation, the hemoglobin was 43 per cent and the red blood cells numbered 3,050,000. Iron was given in 10 grain (0.65 Gm.) doses for two weeks, at the end of which time the hemoglobin was 50 per cent and red blood cell count was 3,100,000. Copper sulphate, 1 drachm (4 cc.) three times a day, was then given in addition to the iron and a sharp rise was seen during the two weeks after the copper was added. A rapid rise of hemoglobin to 85 per cent, and an increase in the red blood cell count of 4,900,000 in seven weeks' time was noted. One month later the hemoglobin and red blood cells were practically the same.

SUMMARY OF CASES TREATED

Thirty-four cases of anemia were observed for from one month to three months before treatment was begun. Before treatment was begun, the maximum number of red blood cells per cubic millimeter in any one case of the series was 3,500,000; the minimum count, 2,800,000; the average was 3,000,000. The hemoglobin count was: maximum, 60 per cent; minimum, 33 per cent; average, 45 per cent. After treatment the maximum count for red blood cells was 5,500,000, the minimum 3,100,000 and the average 4,700,000. The count for hemoglobin was: maximum, 95 per cent; minimum, 60 per cent; average, 85 per cent.

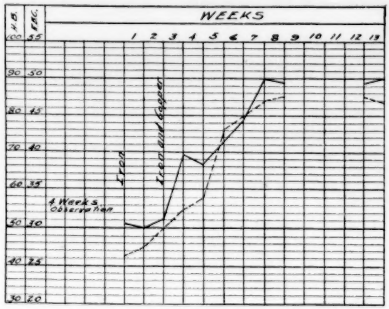

CHART 5 (case 5).—Result in case of nutritional anemia showing slight response to iron but immediate response to copper sulphate.

No case in our nutritional series failed to respond to iron and copper. The clinical improvement was gradual in all cases. The earliest sign was an increase in appetite and general well being and a gain in weight. The red blood cells showed a prompt rise, in some instances reaching a level of 4,500,000 per cubic millimeter within a month. The hemoglobin rose more slowly.

The result in thirty-four cases of secondary anemia in children treated with iron and copper shows a marked improvement in the blood picture, except in cases that were due to infection. Infection interfered with the rate of blood regeneration as exhibited in five of our cases: two that were associated with an upper respiratory infection with bilateral otitis media, one with tuberculosis of the hip and two cases associated with osteomyelitis of the femur. In all instances there was a marked fall in both the red blood cells and the hemoglobin during the period of active infection. After subsidence of the infections, blood regeneration again occurred at a normal rate. The patient with tuberculosis of the hip showed no improvement after fourteen weeks of treatment with iron, copper and blood transfusions.

Fifteen of the cases have been followed for six months after treatment, and in all the red blood cells and hemoglobin were normal.

It is, of course, evident that definite conclusions as to the value of iron and copper in the treatment of anemia in children cannot be drawn from such a small series of cases.

CONCLUSIONS

Iron and copper given in combination to children with nutritional and secondary anemia was more effective than iron given alone. This was particularly noticeable in the nutritional series.

Bennie Dillon Building.

Clinical Notes, Suggestions, and New Instruments

SYMPTOMATIC RESPONSE OF PERIPHERAL ARTERIAL DISEASE IN POLYCYTHEMIA VERA TO INTRAVENOUS USE OF PHYSIOLOGIC SOLUTION OF SODIUM CHLORIDE

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Associate Attending Physician, Lenox Hill Hospital

The frequent occurrence of vascular changes in polycythemia vera, involving the peripheral arteries as well as those of the internal organs, have been described and reported.[1] Evidence of the changes in the peripheral vessels is manifested by the palpable thickening of the vessel walls and the varying degrees of calcification as demonstrated by roentgenograms. Such changes may give rise to (1) symptoms of claudication, (2) arterial occlusion with gangrene, (3) acroparesthesia, (4) thromboangiitis obliterans and (5) other vasomotor disturbances.[2]

The diagnosis of involvement of the arteries of the internal organs, particularly the brain and the heart, is dependent chiefly on symptoms referable to these organs and also on the appearance of the retinal vessels.

My purpose in this paper is to present a simple therapeutic measure, within the reach of the average practitioner, which was employed to give relief to the painful accompaniment of peripheral arterial disease in polycythemia vera.

REPORT OF CASE

History.—A woman, aged 58, complained of pain and swelling of the left great toe, lasting for three months, and pain and tenderness in the phalangeal joints of the right foot. About three months before I saw her, while recovering from an attack of "pleurisy," she first noticed a burning sensation in the toes of her left foot, which after a few days changed to a severe pain occurring without any regularity and most intense at night. These pains had continued with increasing severity so that the patient was unable to walk. She had also noticed that her feet became cyanotic at times and that a tingling sensation in both extremities was also present.

The left great toe had been mostly involved and during the past month it had been continuously swollen, painful, tender and purplish. A blister appeared at the end of the toe about three weeks before and had failed to respond to treatment. During the past four weeks, the metatarsal and phalangeal regions of both feet had been involved at different times.

The remainder of her history was essentially irrevelant except that she had always had a rather flushed face and at times her lips would assume a deep purplish color. No cardiac, respiratory or gastro-intestinal complaints were noted. She was a widow and had one child living and well. The menopause occurred at the age of 38. Both parents had died of unknown causes while the patient was young. The family history was negative.

Examination.—The physical examination was essentially negative except in the following particulars: The face was full-blooded. The conjunctivae of both eyes were congested, the pupils were small, equal and reacted to light and in accommodation. An arcus senilis was present. Both fundi show marked arterial thickening of the retinal vessels. The lips were deep purplish; the throat was injected; the tonsils were cryptic and diseased. The heart was slightly enlarged and there was marked irregularity in cardiac rhythm, which was confirmed by a corresponding irregularity in the pulse. There was also a pulse deficit present. The radial arteries were markedly thickened. The liver was felt about one fingerbreadth below the costal margin, and the spleen was palpable. All reflexes were exaggerated. It was noted during the course of the examination that the patient had a peculiar mental reaction. She was irritable, not at all cooperative, and refused to speak in answer to questions put to her. Both feet showed a marked cyanosis. The large toe of the left foot was more congested than the others and was considerably swollen and tender. The degree of cyanosis varied with the position of the feet, being more marked in the dependent one. The dorsalis pedis pulsation of both feet was not definitely demonstrable. There was a small area of ulceration present at the tip of the big toe of the left foot.

The blood pressure was 158 systolic and 94 diastolic. A blood Wassermann reaction was negative. A blood count taken, March 3, 1930, showed red blood cells, 9,000,000; hemoglobin, 130 per cent. Chemical examination of the blood, February 25, showed: urea nitrogen, 10 mg. per hundred cubic centimeters; creatinine, 0.5 mg.; uric acid, 3.6 mg.; sugar, 141 mg.; carbon dioxide, 50 per cent by volume; blood calcium, 9.8 mg. per hundred cubic centimeters; platelet count, 300,000; blood chlorides, 460 mg. per hundred cubic centimeters; serum albumin, 4.4 mg.; serum globulin, 5.2; blood sodium, 3.58 mg.; blood potassium, 18.5 mg. An electrocardiogram, March 10, showed an auricular fibrillation and left ventricular preponderance. Viscosity of the blood taken with a Hess viscosimeter showed a result of 27 (normal, 4). The blood clotting time was four minutes. A roentgen examination of both extremities showed calcification of the walls of the vessels in the dorsalis pedis. The urine showed the presence of albumin and hyaline casts, on repeated examinations.

Treatment and Course.—The patient continued to have considerable pain in her feet, and various measures locally, as wet dressings and baking, failed to have any quieting effect. Large doses of opiates were required to keep the patient comfortable.

From March 1, the patient received daily intravenous injections of 250 cc. of freshly prepared physiologic solution of sodium chloride for a period of three weeks. About seven days after the commencement of this therapy, the amount of opiates given was diminished to a small occasional dose. The burning sensation in the feet continued, but the marked cyanotic color had completely disappeared. The face was not as flushed as formerly. This improvement was steady, and after the three weeks period the burning sensation had completely disappeared and the patient was able to walk without discomfort. The small area of ulceration had healed and no opiates were required. At this time, March 21, a blood count showed red blood cells, 7,050,000; hemoglobin, 102 per cent. The daily intravenous administration of physiologic solution of sodium chloride was then discontinued, and in its place 3,000 cc. of the same solution was given by means of the duodenal tube (drip method) every twenty-four hours. After four days of this regimen, the pain returned in the feet as did the intense cyanotic appearance. The patient became unable to walk and again required large doses of opiates. Intravenous therapy was again resorted to, but the patient received the 250 cc. of freshly prepared physiologic solution of sodium chloride only every other day. In a few days the same improvement previously noted again occurred. May 3, a blood examination showed red blood cells, 6,440,000 and hemoglobin, 93 per cent. The intravenous therapy was continued until May 10, when it was stopped. The last blood count, May 31, showed red blood cells, 4,800,000 and hemoglobin, 90 per cent. The patient subsequently developed a stubborn attack of cystitis, which finally responded to treatment. A striking change was noted in the peculiar mental reaction of the patient. She became more agreeable and talkative and much more alert.

1. Brown, G. E., and Giffin, H. Z.: Peripheral Arterial Disease in Polycythemia Vera, Arch. Int. Med. **46**: 705 (Oct.) 1930.

2. Credit for this classification should be accorded Brown and Giffin of the Mayo Clinic, who reviewed 100 cases of polycythemia vera with reference to symptoms that might be regarded as indicative of peripheral arterial disease.

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Her cardiac arrhythmia also improved considerably, so that by the time of her discharge only an occasional extrasystole could be detected. This improvement occurred without the use of digitalis or any other cardiac medication. The patient also received at weekly intervals six roentgen treatments over the long bones, beginning March 6 and ending April 25.

COMMENT

The case reported is one of polycythemia vera with marked arterial disease involving the various internal organs as the brain, heart, kidney and the peripheral arteries. The involvement of the brain is manifested by such clinical signs as increased reflexes, peculiar mental reactions of the patient and changes observed in the retinal vessels. The heart involvement presents the clinical picture of an auricular fibrillation, while the changes in the peripheral arteries are most marked in both feet, giving rise to circulatory disturbances and extreme pain.

The effect of the roentgen treatments must also be properly evaluated. It will be noted that such treatments were started at approximately the same time as the intravenous therapy. It would be difficult to attribute the improvement observed to such roentgen treatments alone, or to a mere coincidence, since the discontinuance of the daily intravenous administration of the physiologic solution of sodium chloride, together with the continued use of the roentgen therapy alone, was promptly followed by a return of all the symptoms. This case report is therefore presented with the hope of establishing some practical means of offering relief to such patients.

119 East Eighty-Fourth Street.

A NEW VARICOSE VEIN OCCLUDER

H. O. McPHEETERS, M.D., MINNEAPOLIS

The injection treatment of varicose veins has passed the experimental stages and is now accepted as a standard mode of therapy for this condition. So much has been written on the history of this method of treating varicose veins that further repetition is needless. Suffice it to say that it has had many and just criticisms and though perfection has not been attained, yet the dangers and complications associated with the treatment can now be avoided and today it is the safest method for the treatment of varicose veins and their many complications.

The theory of the treatment is based on three factors:

1. The flow of blood in varicose veins is slowed or reversed.

2. By the injection of various chemical solutions into the lumen of the vein a reaction is brought about on the intimal lining of the vein wall.

3. The injected solution causes a change in the blood constituents with a resultant thrombus formation in the presence of the stagnant blood stream and injured vein wall.

Fig. 1.—The "Mac" malleable varicose vein occluder.

Many solutions have been used and suggested for this work, but today the combination of sugar (dextrose or invert sugar) with sodium chloride and benzyl alcohol is the most satisfactory solution of all. The reaction or chemical "venitis" is less violent following the injection, the cramplike pain and ache at the time of the injection is reduced, and the end-results seem to be just as good and more quickly attained. I now use this solution in more than 90 per cent of my cases.

If it is desirable to inject a solution to react on the blood stream and vein wall as discussed, should not everything possible be done to accomplish that result accurately and positively? If it seems apparent that a stronger solution is needed in certain varices and at different times, should not the operator control the spread and dilution of the solution until he has obtained the result sought, instead of injecting a solution of strong concentration into a large varix filled with ten times as much blood as the volume of the solution injected? In such a case the solution acting on the vein wall would be diluted to a 5 per cent and 7 per cent solution, which is far below the effective concentration. Lack of appreciation of this factor of "control and dilution" accounts for the great majority of failures in the injection treatment of large varices.

In the cases of extensive varices with many collaterals the retention and control of the solution locally is best accomplished by tourniquets both above and below the segment being treated.

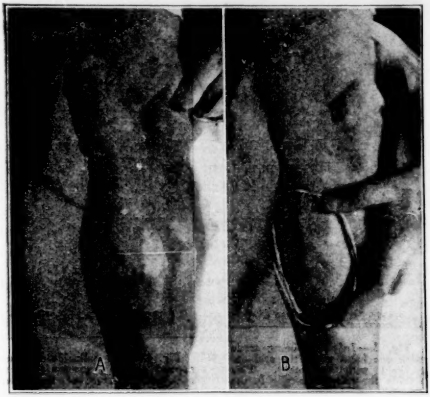

Fig. 2.—*A*, varicose veins, size 3, along inner thigh and calf; *B*, malleable "Mac" occluder in position for use.

With the veins practically empty and the tourniquets applied, when the solution is injected, it can be retained in a concentrated form long enough to assure the desired reaction. It is true that some of it will spread through the communicating veins to the deep system, but this can be controlled by lowering the leg as the solution is injected, or by having the patient sit up and thus increase the backward and outward pressure through the communicating veins from the deep system.

There are some cases, however, in which some type of occluder best serves the purpose. The most common case is the large spider or skyrocket burst most commonly seen on the thighs of fleshy women. These are seen also on the lower part of the legs and on the feet. Certain cases of large varices can best be handled in the same manner. This is especially true when it is desired to treat only a small area at a time and yet be positive of a result.

The occluders fashioned after the method of Rheil of Vienna serve very well in a limited number of cases. Both the Theis and the Strickler occluders have a place, but both of them are rigid, and though they are of value on a flat surface, as the thigh or fat lower part of the leg, they are of no value at all in the case in which the thin bony lower part of the leg is involved. None of the present occluders are large enough to cover a saucer sized area or larger, as it is often necessary to do.

About three years ago I began trying to devise such an occluder. Previous to that time I had not seen or read of any such instrument. At first a hard rubber pessary was boiled and then molded to the desired shape while soft. This was not practical, however, and was not efficient. Copper, aluminum and lead wires and tubes were used, but not until the "nickel composition" occluders shown in figure 1 were developed was the ideal reached. This occluder is malleable and can be easily molded to any desired shape or form. Thus it will fit over the tibial crest, the ankle or the knee where the others would be of no value. It is firm and stiff enough to stand sufficient pressure to block off the area being treated. It can also be shaped to block or

occlude a large or small "burst" and at other times an oblong segment of a large varix. The occluder can be held in place by an assistant or, if the operator uses a syringe of the type of the "luer lok" with rings for the fingers and thumb, it can easily be held by one hand of the operator while he injects with the other.

Fig. 3.—Injection being made with one hand while the occluder is held with the other. This retains the solution locally in the segment of the vein being injected.

Fig. 4.—The malleable occluder applied over an uneven surface, such as the crest of the tibia.

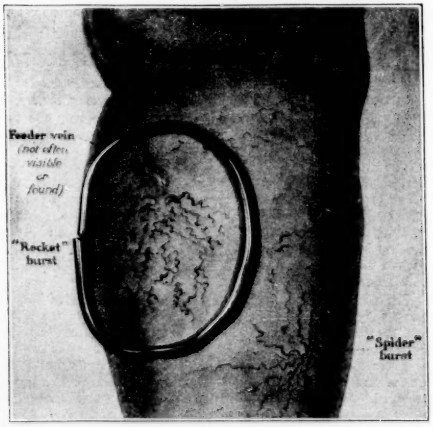

Fig. 5.—The occluder used in the injection of the burst. It is particularly adaptable for this and is preferable to the tourniquets for such cases.

Though the tourniquets are used for the majority of the injections, there is a certain class of cases that can be handled far better by this occluder than by any as yet presented to the profession.[1]

900 Nicollet Avenue.

1. The varicose vein occluder is manufactured by the C. F. Anderson Company, 214 South Seventh Street, Minneapolis.

Special Article

THE INDISPENSABLE USES OF NARCOTICS

THE THERAPEUTIC USES OF NARCOTIC DRUGS *

HORATIO C. WOOD, JR., M.D.
PHILADELPHIA

There are certain facts concerning opium or cocaine and their derivatives that should be borne in mind. First, they are valuable therapeutic agents; to banish them from our materia medica is to work an unjustifiable hardship on suffering humanity. Second, the habitual use of them is a real menace to the welfare of society, which should be combated with every weapon available. Third, the injudicious use of these substances as remedial agents has in many instances resulted in the formation of a habit. With a knowledge of these facts the conscientious physician will not hesitate to use them when necessity demands but, on the other hand, will try to avoid their employment whenever possible by the application of less dangerous measures.

OPIUM

Opium is a complex substance, containing some twenty alkaloids, only four of which, however, are of practical importance; namely, morphine, codeine, narcotine and papaverine. While the general effect of opium is dominantly that of morphine, the other alkaloids modify more or less the action of the whole drug. Before considering the clinical indications for the use of opiates it may be well to note the differences in the physiologic effects of these alkaloids.

Morphine has four actions on which its therapeutic uses depend. 1. In small amounts it is a depressant to the pain-perceiving centers of the cerebrum. 2. In somewhat larger doses it depresses the intellectual functions and thereby exerts a somnifacient effect. 3. It is a depressant to the respiratory center, in small doses lessening its response to irritation and in large doses reducing the amount of air moved. 4. It tends to lessen glandular activity, probably affecting to a greater or less degree all the secretions of the body except the sweat. 5. The older writers also ascribed to it an important effect in diminishing the contractility of the unstriped involuntary muscles, especially those of the intestine, but recent investigation indicates that its action is stimulating rather than depressing to peristalsis.

Narcotine, which is the next most abundant alkaloid after morphine, despite its name is not narcotic. It exerts neither analgesic nor sleep-producing effects. Its most important action is a stimulation of the medullary centers governing respiration. In this it is directly antagonistic to morphine.

* These articles are prepared under a plan of cooperation between the American Medical Association, the Committee on Drug Addiction of the Division of Medical Sciences of the National Research Council, and the Division of Mental Hygiene of the United States Public Health Service. Their object is to reduce the legitimate use of addiction drugs to a minimum by replacement, wherever possible, with other remedies that will accomplish the desired result. The physicians of the United States are the essential group in any such attempt and it is hoped that these articles will be useful to them in their practice. The funds for this work have been donated to the National Research Council by the Bureau of Social Hygiene, Inc.

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Papaverine has a feeble narcotic action, its dominant effect being to lessen the irritability of unstriped muscle. Like narcotine, it is stimulant to the respiratory center. It has been recommended in various spasmodic conditions of the involuntary muscles, such as asthma or colic. It is a relatively feeble drug, requiring about a grain (0.065 Gm.) to produce sensible effect on a man, and is present in opium in such small amount (about 0.5 to 1 per cent) that it can play only a minor part, if any, in the effect of opium.

Codeine is similar in its general actions to morphine, although much weaker. It has relatively slight action on pain perception or intellection and is much less liable to give rise to an addiction. Ordinarily opium yields from 1 to 2 per cent of codeine.

THERAPEUTIC USES

The therapeutic purposes for which opium is used may be considered under six heads: (1) locally; (2) as an analgesic; (3) as a somnifacient; (4) as a respiratory sedative; (5) as a sudorific; (6) for its effect on the intestines.

Local Uses.—There is, perhaps, no misuse of opium more common, or more foolish, than the employment of laudanum, either with or without lead acetate, as an embrocation in sprains and bruises. I believe that the purpose usually in the mind of the prescriber of "lead-water and laudanum" is to relieve the pain while nature is repairing the injured tissues. This idea is founded on a complete misconception of the action of the opium principles. In the first place, both morphine and codeine are centrally acting drugs; their pain-relieving powers are due to an effect on the cerebrum. In the second place, even if they were possessed of local anesthetic properties, there is no evidence that they are capable of passing through the unbroken skin, when in aqueous solution. Another fact which is often lost sight of is that opium is an active local irritant; I have seen severe blistering from the prolonged use of lead-water and laudanum. Of course external irritants are often valuable in injuries like sprains, but there is no evidence that opium is any more useful for this purpose than is turpentine or capsicum.

Relief of Pain.—As an assuager of pain, morphine stands unrivaled by any other drug or combination of drugs. Nevertheless, it is used much more frequently and in larger quantities than is necessary, and often to the great detriment of the patient. The thoughtful physician by the use of other anodynes can contrive with surprisingly small quantities of opiates.

The decision as to whether or not to use morphine in any given case should be based on three factors: the severity of the pain, its probable duration, and its underlying cause.

In the extreme types of acute suffering, such as renal or biliary colic, it verges on cruelty to experiment with other analgesics, although even here by combinations that I shall point out later one can usually succeed with relatively small doses. In cases in which the pain is likely to recur frequently, the physician must never lose sight of the temptation for the patient to exaggerate the pain for the sake of the euphoria of morphine and the danger of establishment of an addiction. In the chronic pains, even when severe, such as are seen in certain cases of cancer, the physician should refrain from morphine as much as possible, not merely because of formation of a habit but rather from the fear that the patient may develop such a tolerance that the drug may lose its power and fail to relieve when the sufferer most needs it.

In the less violent forms of pains, the profession of today is fortunate in possessing what our fathers of fifty years ago did not have, a number of efficient analgesics with which it is possible to obviate entirely the necessity for opium, or at least to reduce the dose to a minimum. Foremost among these succedanea are the coal tar derivatives. These may be divided into three groups: the first including acetanilid and acetphenetidin, the second antipyrine and amidopyrine, and the third the salicylates and cinchophen derivatives.

The last group possesses the property of increasing the elimination, through the kidney, of the purine substances, such as uric acid. As general analgesics they are distinctly inferior to the first two groups but have a peculiar value in the painful metabolic disturbances classed as "rheumatic." Probably because of the frequency of joint involvements in these cases, there has arisen a common belief that these drugs are useful in all forms of arthritis, a supposition that is far from the fact. In such diseases as arthritis deformans or gonococcal arthritis, not only do they fail to exercise any curative effect but they possess less anodyne value than the other coal tar derivatives. Of the two chief drugs of this group the cinchophen allies are distinctly more potent than the salicylates. It is well to issue a word of warning, however, that cinchophen can no longer be regarded as an innocuous analgesic. There have recently been reported a number of cases of severe and even fatal degeneration of the liver following the use of this class of drugs.[1]

Of the salicylic group, one drug requires especial mention because of the great popularity it has with the laity; namely, acetylsalicylic acid. When this compound is ingested, a somewhat indefinite proportion is decomposed in the system, liberating salicylic acid, which exerts its characteristic effects. Some of the drug, however, appears to circulate unchanged. This fraction does not hasten purine elimination but does exert some analgesic effect.

Between the drugs of the acetanilid and antipyrine groups there appears to be little choice. The latter are perhaps somewhat quicker and more powerful in their anodyne effects, but acetanilid is more durable. It is as though the full analgesic powers of antipyrine are exerted at once, while those of acetanilid are spread over a period of time.

Acetphenetidin is often regarded as a safer drug than acetanilid, but this is probably simply a question of dosage. It must be remembered that acetphenetidin yields about 30 per cent less paramidophenol, the active substance of these drugs, in the body than does acetanilid, and the dose must therefore be correspondingly larger.

Amidopyrine is, weight for weight, distinctly more powerful than antipyrine but is apparently correspondingly more toxic. It is doubtful whether, in proportional doses, it possesses any real advantage over the older drug. Antipyrine has one advantage over the other members of the series, that of being freely soluble in water and therefore available for liquid mixtures.

1. Rabinowitz, M. A.: Atrophy of the Liver Due to Cinchophen Preparations, J. A. M. A. **95**: 1228 (Oct. 25) 1930.

It may often be advantageously combined with the bromides.

Certain of the aliphatic somnifacients—especially those of the barbital group—have recently been eloquently urged on the profession as synergistic anodynes. It should be remembered, however, that these drugs are primarily intellectual depressants and only secondarily sensory paralyzants; their dominant effect is to cause sleep rather than to relieve pain. This is just the reverse of morphine, which is primarily analgesic and only secondarily stupefying. While it seems probable that the barbital drugs do enhance, to a certain extent, the pain relieving properties of the coal tars, by themselves most of them certainly have little analgesic value unless given in very large doses. An exception to this general rule appears to be certain compounds containing bromine in their molecule, such as carbromal. This drug, while relatively inefficient as a sleep producing agent, will often relieve pain without producing drowsiness. For this purpose it may be given in doses of 5 to 10 grains (0.3 to 0.65 Gm.).

Another drug that possesses a certain degree of value for symptomatic alleviation is the bromide. Although bromide has little power in stopping pain, unless given in enormous quantities, it has a peculiar psychologic action that blocks the mental distraction of unpleasant sensations. By itself of slight importance as an analgesic, it is frequently of great value in combination with other drugs.

Cases in which the pain is too severe to yield to these anodynes are, fortunately, usually of short duration and the danger of addiction is comparatively remote. The physician may therefore use an opiate with little compunction, except in highly neurotic individuals.

One of the most difficult problems of therapeutics that the physican has to face is the alleviation of the pain in certain chronic diseases, such as cancer or arthritis, which may be so intense as to demand an opiate and yet promises to be of so long duration that the anodyne is likely to lose its power. It has recently been demonstrated that the rapidity with which morphine tolerance is established is proportional to the size of the dose; the larger the dose, the more quickly does the system accommodate itself to the narcotic. Because of this fact the physician should use morphine as a miser spends his gold, only when dire necessity requires and in as small amounts as possible. By the cunning use of the other analgesics as synergists, strong anodyne effects can be achieved with minimal doses of opiate. Not only is it possible to postpone the time when morphine must be used, but even when it has become a necessity the dose required may be greatly reduced by the use of some such combination as:

		Gm. or Cc.	
℞	Sodium bromide	15	ʒ vi
	Antipyrine	5	ʒ ii
	Morphine sulphate	.075	gr. iss
	Fluidextract of glycyrrhiza . . . to make	50	fl ʒ ii

M. Sig.: One teaspoonful in water, for pain, not oftener than twice a day.

If an analgesic is required in intervals between this mixture, 5 grains (0.3 Gm.) of carbromal may be used.

From the standpoint of therapeusis, pains may be divided into three groups: 1. Those due to spasm or stretching of involuntary muscles. In this group would be included the gallstone colic, menstrual cramps, the paroxysms of peptic ulcer and angina pectoris. 2. Those due to inflammatory changes, whether traumatic, or of other origin. This would include broken bones, carbuncles, arthritis, cancer and pleurisy. 3. Pains due to diseases within the nervous system itself, such as neuralgias, neuritis or locomotor ataxia.

In pains due to spasm of the visceral muscles, the most important adjuvants are the solanaceous alkaloids, such as atropine and scopolamine. It may be remarked, in passing, that the view formerly held that morphine itself lowers the tone of unstriped muscle seems to be pretty thoroughly disproved by recent experimentation. While atropine is a more powerful depressant of the parasympathetics than scopolamine, the latter has an effect on the cerebrum which often appears to enhance the analgesic effects of morphine. A combination of one-hundredth of a grain (0.6 mg.) of scopolamine with one-sixth grain (11 mg.) of morphine in cases of biliary colic, for example, will often produce almost as much relief as would double the dose of morphine. It should be remarked that if the pain is due to overdistention, as in the passing of a gallstone or kidney stone, all that the atropine can accomplish is to relieve the accompanying spastic tonus of the muscle.

In conditions of recurrent visceral colic, such as cholelithiasis, the possibility of an addiction from the therapeutic use of the opiates must always be borne in mind. Especially is this true in menstrual cramp, the victims of which are so frequently women of unstable nerve balance. Dysmenorrheas, aside from those due to anatomic or surgical conditions, probably all fall under one of two heads, spasmodic or neuralgic. In the first group, atropine has been found of service. It must be given in full dose (one one-hundredth grain or 0.6 mg.) from three to six times a day, preferably for several days before the onset of menstruation. For the neuralgic type the various analgesics should be tried both singly and in combination before having recourse to an opiate. The following will usually be found efficacious:

		Gm. or Cc.	
℞	Antipyrine	2.5	gr. xl
	Carbromal	2.5	gr. xl
	Dispense in six capsules.		

Sig.: One for pain. Repeat if necessary in two hours.

The so-called uterine sedatives, such as viburnum or dioscorea, are physiologically inert, and such relief as has followed their use must be attributed to the influence of mind over matter.

As a Respiratory Sedative.—The peculiar value of morphine and its allies in relieving abnormal respiratory movements, such as cough or asthma, depends on the fact that they may lower the reflex irritability of the respiratory center without depressing normal respiration. Macht has found that the increase in respiration normally caused by the presence of carbon dioxide in the inspired air is greatly diminished or entirely prevented by doses too small to reduce the amount of air moved. The accompanying table, adapted from his paper, clearly illustrates this peculiar power, which does not appear to be possessed by other respiratory depressants except those which, like codeine and ethylmorphine hydrochloride, are chemically related.

While there is no drug that will completely replace the opiates as respiratory sedatives, they are certainly

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employed for this purpose with a most unnecessary freedom.

Ordinarily in acute bronchitis the use of either morphine or codeine is unnecessary, and sometimes even harmful. By the use of the saline and nauseating expectorants, such as the citrates and ipecac, one can generally establish free bronchial secretion in a comparatively few hours and with its appearance the subjective discomfort of unproductive cough promptly disappears. The use of warm aqueous vapors, as in inhaling steam, is of great value, not only in aiding the reestablishment of expectoration but also in lessening the irritability of the sensory nerves of the bronchial tract.

*Effects of Opium Alkaloids on Respiration**

	Cubic Centimeters of Air Moved per Minute		Increase of Air After Carbon Dioxide	
	Before	After	Before	After
Morphine: small dose....	400	410	100	65
Morphine: large dose....	430	250	140	0
Narcotine: small dose...	300	300	100	140
Narcotine: large dose....	300	420	100	130
Papaverine: small dose..	430	450	120	100

* Modified from paper by Macht, D. I.: J. Pharmacol. & Exper. Therap. 7: 339, 1915.

Cough is a reflex movement, starting with a sensory irritation that is conveyed to the respiratory center from which is sent out a motor impulse to the diaphragm. Morphine breaks this reflex arc by depressing the sensitivity of the respiratory center, but the reflex arc, theoretically at least, might just as well be interrupted peripherally. If a local anesthetic could be introduced that would paralyze the nerve terminals in the bronchial mucous membrane, the reflex would be stopped as efficiently as if the center were paralyzed. The local anesthetics of the cocaine group are sometimes used with benefit by direct injection into the trachea, but the operation is one that requires the skill of an expert laryngologist and is not available for the ordinary case of bronchitis. There are available, however, some volatile substances which possess a certain degree of local anesthetic power and which can be inspired into the trachea and bronchi. Foremost among these is menthol. The addition of this drug to the steam inhalations just referred to will often exert a most happy effect in abating a cough. From one half to 1 grain (0.02 to 0.05 Gm.) of menthol may be added to a pint of hot water and the vapors inhaled. Many physicians like to use a solution of menthol in compound tincture of benzoin; whether or not the benzoin yields any volatile ingredient that adds to the anesthetic properties of the menthol, I am somewhat uncertain; but I do know that the combination yields good results.

		Gm. or Cc.	
℞	Menthol	3	gr. v
	Compound tincture of benzoin	30	℥ ʒ i

M. Sig.: One teaspoonful in a pint of boiling water, inhaling the vapors.

If the cough is so violent that it becomes necessary to use an opiate, this is much better given separately rather than added to the expectorant mixture. In this way one may diminish or increase the symptom-remedy, as circumstances may require, without interrupting the general treatment. For the relief of cough, ethylmorphine hydrochloride, from one-twelfth to one-eighth grain (6 to 8 mg.), is very efficient and much less habit-forming than morphine. Codeine is also popular but is less active than ethylmorphine hydrochloride.

Another type of respiratory reflex in which morphine is valuable but dangerous, because of the liability of addiction, is the asthmatic paroxysm. I imagine that most physicians of even moderate experience have seen one or several cases of morphine addiction due to asthma.

The most certain clinical relaxants of bronchial spasm are the sympathetic excitants epinephrine and ephedrine. These drugs, in sufficient dose, will nearly always relieve the paroxysm. Unfortunately, however, the amount sometimes required is large enough to cause dangerous, or occasionally fatal, arterial constriction. This can be prevented to a limited extent by giving with them glyceryl trinitrate. But, because of the peril of too great rise in blood pressure, they should not be used when there is any weakness of the heart muscle. To obtain good results with epinephrine it must be injected either into a vein or deeply into muscle; it is poorly absorbed from subcutaneous tissue. Ordinarily one two-hundredth grain (0.3 mg.) combined with one one-hundredth grain (0.6 mg.) of glyceryl trinitrate, if injected intramuscularly, is sufficient to produce the desired result. Ephedrine hydrochloride may be used hypodermically in doses of about 1 grain (0.065 Gm.).

Another useful drug for relieving bronchial spasm is atropine. The desired result can usually be obtained with less general disturbance by inhaling the fumes generated by combustion of either belladonna or stramonium leaves. Most of the proprietary "asthma powders" are based on this principle. The leaves may be mixed with tobacco and made into cigarets, or they may be mixed with potassium or sodium nitrate and burned in a saucer, the patient deeply inhaling the smoke. The following formula will serve as a model:

		Gm. or Cc.	
℞	Sodium nitrate	30	℥ i
	Stramonium	30	℥ i

M. Sig.: A teaspoonful to be ignited and the smoke inhaled.

COCAINE

Properly speaking, cocaine is not a narcotic, as it does not cause stupor. It is, however, included in the Harrison Narcotic Act, as it is one of the most dangerous habit-forming drugs.

Cocaine has three physiologic actions that may be therapeutically useful: (1) a stimulating effect on certain nerve centers, especially the respiratory and vasomotor mechanisms; (2) stimulation of the peripheral ends of the sympathetic nerves, especially the vasoconstrictors and the motor nerve to the dilator of the pupil; (3) paralysis of the nerves of sensation.

As a Sympathetic Stimulant.—The action of cocaine on the sympathetic nerves is, like its anesthetic effects, essentially a local action; that is, it is not possible to introduce large enough quantities systemically to exert this influence because of its overwhelming central effects. As a sympathetic stimulant it is used chiefly for two purposes: First, to dilate the pupil of the eye, especially for ophthalmoscopic examination. The mydriasis caused by cocaine differs essentially from

that of atropine in that the oculomotor nerve is not involved and there is consequently no disturbance of accommodation. Second, as a local vasoconstrictor, chiefly to shrink the turbinal bodies in acute coryza, hay-fever and the like. Its use for this purpose, especially in the more chronic conditions, is fraught with much danger of forming a habit. Probably more cases of addiction to cocaine are due to the use of the drug in respiratory infections than from any other cause—with the exception of its deliberate employment as a psychic stimulant. In face of this danger and considering the present-day agents that are at least equally efficient, the prescription of cocaine to be used by the patient in congestions of the nasal mucosa seems scarcely justifiable, except under unusual circumstances.

Among the drugs that may be employed for this purpose are antipyrine, 1 to 5 per cent solution; epinephrine, 0.2 to 0.5 part per thousand; ephedrine hydrochloride, 1 to 3 per cent.

As a Local Anesthetic.—For the purpose of paralyzing the nerves of sensation, cocaine has certain obvious advantages over the various substitutes that have been suggested. In the first place, it is one of the most powerful drugs of the group; many competent observers maintain that they get a more complete abolition of sensation from cocaine than from any related substances. Secondly, it penetrates mucous membranes much more readily than most of the other drugs of this class. Many of the local anesthetics must be injected into the neighborhood of the sensory nerves to produce their effects, but cocaine will often produce almost complete abolition of sensation by merely being painted over the surface of unbroken mucosa. It should be remarked, however, that in aqueous solution it cannot pass through the skin at all and only to a slight degree through the thicker mucous membranes, as those of the urethra or anus. Thirdly, cocaine is alone among the local anesthetics in its vasoconstricting effects. The ischemia produced by it tends to prevent its being carried away by the blood stream and therefore to prolong its anesthetic action. This advantage, while a real one, has lost in recent years much of its importance because the same desirable effect can be accomplished by combination with epinephrine.

Over against these advantages of cocaine stand two serious drawbacks: its relatively high toxicity and the ever present danger of the formation of a habit.

The choice between the local anesthetics in any individual case is greatly influenced by the purpose for which it is employed. There are four types of methods by which local anesthetics can be used: (1) over unbroken skin; (2) over unbroken membranes; (3) by injection either intradermally or deeply into the vicinity of nerve trunks, and (4) over raw surfaces.

Over Unbroken Skin: As already pointed out, neither cocaine nor the related drugs are capable of penetrating the intact skin when in aqueous solution, but they can be carried through the skin in fatty solution; that is, in the form of an ointment. In this connection it should be remembered that salts of the alkaloids, while generally more soluble in water, are less soluble in fatty menstruums than the base itself; therefore, for an ointment, cocaine itself should be preferred above the hydrochloride. It is doubtful whether cocaine in ointment form is any better than many of the less dangerous substitutes. One of the most valuable of the cocaine allies as a skin anesthetic is ethyl aminobenzoate. This may be applied for the relief of itching in combination with almost any of the ordinary dermatologic drugs, as for example in the following prescription:

		Gm. or Cc.	
℞	Resorcinol	3	gr. v
	Ethyl aminobenzoate	1	gr. xx
	Ointment of rose water	15	ʒ iv
M.	Sig.: For external use.		

When ointments or greasy applications are not desired there are several local anesthetics which, although less potent than the cocaine homologues, are nevertheless active enough to be of real value. These, in approximate order of efficiency, are benzyl alcohol, phenol, menthol, resorcinol, camphor and eucalyptol.

Over Mucous Membrane: For direct application, cocaine is distinctly superior to most of its rivals. Phenacaine apparently penetrates the mucous membranes about as well as cocaine and is equally potent but is distinctly more toxic. Eucaine hydrochloride is less poisonous than cocaine but penetrates mucous membranes only about one-half as efficiently. Most of the other cocaine substitutes are so feeble in their penetrating powers as scarcely to merit consideration for this purpose.

Injection: The most important use of the local anesthetics is for surgical purposes, by injection in the neighborhood either of the peripheral nerve endings or of the nerve trunks. The so-called spinal anesthesia is really a form of blocking of nerve trunks, the drug being introduced into the subarachnoid space destroys the conductivity of the posterior nerve roots before they emerge from the spinal canal.

For the purpose of nerve blocking by subcutaneous, intraneural or intraspinal injection, there are a number of cocaine substitutes that are practically of equal efficiency, much less toxic and free from the danger of forming a habit. Probably the safest of these for general purposes is procaine hydrochloride.

In judging of the relative danger of the local anesthetics, not only the lethal dose as determined by intravenous injection must be taken into consideration, but also the rapidity with which the drug is destroyed in the body. For example, eucaine hydrochloride, when injected into the blood stream, is actually more poisonous than cocaine, but if introduced into the subcutaneous tissue and gradually absorbed, it is rapidly detoxicated by the liver (which is not the case with cocaine), so that, given hypodermically, eucaine hydrochloride is only about one-third as dangerous as cocaine. A knowledge of this fact is of great importance in interpreting the statements in the literature concerning the safety of procaine hydrochloride. The experiments of Hatcher show that intravenously the lethal dose of procaine hydrochloride is about three times that of cocaine, but the experiments of others, as well as clinical experiences, indicate that procaine hydrochloride is certainly less than one-sixth as toxic as cocaine. There have been a few cases of fatal results from the injection of procaine hydrochloride, but I am strongly of the opinion that these accidents are to be ascribed to the drug's having unwittingly been introduced directly into a vein.

It is impossible to make any guess as to the mortality rate of surgical anesthesia from procaine hydrochloride, but in view of the frequency with which it is employed, often by persons not skilled in surgical technic, and the rarity of deaths or even of alarming symptoms, it must be regarded as one of the safest of surgical procedures.

319 South Forty-First Street.

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Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary.

VACCINO ANTIPIOGENO POLIVALENTE BRUSCHETTINI AND VACCINO ANTIGONOCOCCICO BRUSCHETTINI NOT ACCEPTABLE FOR N. N. R.

Vaccino Antipiogeno Polivalente Bruschettini and Vaccino Antigonococcico Bruschettini are manufactured by Dr. Prof. A. Bruschettini, Genoa, Italy, and are marketed in the United States by the Pagano Drug Company. These vaccines were presented for the consideration of the Council. According to the label, Vaccino Antipiogeno Polivalente Bruschettini is a bacterial vaccine made from Streptococcus (Hemolyticus and Viridans), Pneumococcus Fränkel, Staphylococcus (Aureus and Albus), Staphylococcus Citreus, Bacillus Prodigiosus, and Bacillus Coli; and Vaccino Antigonococcico Bruschettini is a bacterial vaccine made from Gonococcus, Pseudo-Gonococcus, Pseudo-Diphtheria Bacillus, Enterococcus, Staphylococcus (Albus and Aureus), and Staphylococcus Citreus. The firm presented as evidence for the value of these typical "mixed" vaccines "a number of questionnaires voluntarily answered by reliable local doctors" and fifteen reprints, mostly from Italian journals or society proceedings.

In 1918 the Council in refusing admission to a number of mixed vaccines announced as its attitude on this class of preparations "that there should be admitted to New and Nonofficial Remedies only those vaccine mixtures for which there is acceptable evidence to indicate that the use of the particular mixtures is rational" (THE JOURNAL, June 22, 1918, p. 1967). The Council took this action because experienced clinicians were generally of the opinion that mixed vaccines have no specific action and that any effect they may produce is due to nonspecific protein reaction. Since that time the Council has refused recognition to many vaccine mixtures for lack of acceptable evidence of their worth or rationality. In the case of the Bruschettini vaccine mixtures now under consideration, no such evidence has been supplied. The Council therefore declared Vaccino Antipiogeno Polivalente Bruschettini and Vaccino Antigonococcico Bruschettini unacceptable for New and Nonofficial Remedies.

COMMITTEE ON FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COMMITTEE ON FOODS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

DEL MAIZ BRAND, THE NEW CORN

Manufacturer.—Minnesota Valley Canning Company, Le Sueur, Minn.

Description.—A canned corn of definite variety, standardized to taste and consistency with sugar, salt and water.

Manufacture.—Approximately 20 per cent of Del Maiz corn is produced directly by the company. The remainder is grown by growers under contract which gives the company complete supervision over growing and harvesting. Planting commences the second week of May and continues until about the third week of June in accordance with a definite schedule, so that the corn acreage develops into the canning stages at a rate properly adapted to the capacities of the canneries. The correct day for harvesting is determined by experience supplemented by chemical determinations. An entire planting is taken in a day to standardize the maturity of the final product. It is the practice to have the corn in the can five hours after removal from the stock in the field, with the exception of a small proportion brought in in the cool of the evening, which is held for starting the canneries in the morning.

Machines cut off the butt end of the cob and remove the husk. The ear travels through a washer and onto inspection belts, where imperfect ears are trimmed or discarded, and then passes through a rotary washer to mechanical cutters set to cut the corn down to a depth of approximately half the total depth of the kernels. Scrapers lightly scrape off the "cream" adhering to the cob.

The cut corn is passed through silking machines to remove the corn silk and pieces of husk. The kernels and "cream" are mixed with sufficient water, sugar and salt to standardize the flavor and consistency. The mixture is heated for ten minutes at 180 F. in "creaming tanks" and then tested for "washed drained residue" (percentage of kernels per given volume of finished product) and the thickness of the "cream." Cut corn or additional sugar-salt solution is added to bring the mixture to a standard consistency. The standard mixture is canned, sealed, and automatically processed at 245 F. for seventy minutes. It is rapidly cooled to 90 F.

Chemical Composition.—

(proximate analysis)	per cent
Moisture	74.6
Total solids	25.4
Ash	1.1
Reducing sugars as dextrose	0.6
Sucrose	5.8
Protein (N × 6.39)	2.7
Fat (ether extract)	0.9
Crude fiber	0.3
Total carbohydrates (by difference) other than crude fiber	20.4

Calories.—

1.00	per gram
28.4	per ounce
454.	per pound

Claims of Manufacturer.—Del Maiz Corn is a strictly fancy quality corn produced from a new strain of corn developed by this company. This corn has a small cob with tall kernels, which are cut far enough away from the cob to avoid inclusion of tough fibrous material. The corn is harvested at that period of maturity for best flavor and is canned within five hours to retain the original fresh quality so far as is possible. The kernels are plump and meaty.

HECKERS' CREAM FARINA (HEARTS OF WHEAT)

Manufacturer.—Hecker H-O Company, Inc., Buffalo, N. Y.

Description.—A wheat flour middlings or farina. A breakfast cereal.

Manufacture.—The farina is a wheat flour middlings milled from hard spring wheat. The wheat is cleaned free from all foreign material by the usual cleaning processes of flour mills. The clean wheat is crushed between "break-rolls." The coarse particles or flour middlings representing pure wheat endosperm are separated from the bran, germ and flour by the usual bolting and purification processes of flour mills. That portion of the flour middlings meeting quite exacting specifications for granulation, freedom from metallic particles, sand, bran and germ materials is "cut off" for Heckers' Cream Farina.

The farina is passed through a steam heated revolving drum for killing any insect infestations. The cooled farina is passed through "purifiers" to eliminate any flour or particles of coarser granulation than that desired. The farina fulfilling standard requirements for Cream Farina is packed in label wrapped cartons.

Chemical Composition.—

(proximate analysis)	per cent
Moisture	11.0
Mineral matter	0.4
Fat (ether extract)	1.1
Protein (N × 5.7)	9.5
Crude fiber	0.3
Carbohydrates (by difference) other than crude fiber	77.7

Calories.—

3.53	per gram
100.3	per ounce
1605.	per pound

Claims of Manufacturer.—Heckers' Cream Farina is an excellent smooth pure wholesome cereal. It is almost entirely free from bran or any roughage that may irritate the delicate digestive organs of the infant. It is essentially a carbohydrate food but contains good body building proteins.

Cream Farina used as a breakfast cereal cooks in two to three minutes. It may also be used in many delicious recipes.

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SATURDAY, APRIL 4, 1931

IS ROCKY MOUNTAIN FEVER PRESENT IN THE EASTERN UNITED STATES?

For years a mild form of typhus fever has been endemic in parts of the Eastern states. More recently the endemic area seems to have been extended especially toward the South. For the past year the United States Public Health Service,[1] has been making an epidemiologic investigation of endemic typhus in this area. The investigators visited most of the patients and obtained information about others from the attending physicians. It early became evident that many of the cases did not correspond with the picture of endemic typhus. They were much more severe. Rumreich, Dyer and Badger,[2] who analyzed a hundred of the cases under investigation, had no difficulty in separating them into two groups. One group comprised fifty cases that were clearly endemic typhus fever; the other group of fifty cases were clinically indistinguishable from Rocky Mountain spotted fever. The patients in the first group were mostly persons who had not left the city; in the other group, most of the patients lived in a rural environment and had either been bitten recently by ticks or lived under conditions that made tick bites possible. In all of the 100 cases the initial symptoms were similar. They came on abruptly and in a few days the fever reached from 102 to 105 F., with morning remissions of from 1 to 3 degrees. However, the duration of the fever in the first group varied from eleven to sixteen days and in the second group from eleven to twenty-two days. In the typhus cases, rose-colored macules, sometimes becoming papular, almost invariably appeared on the fifth day, first on the chest and abdomen, but never on the face, and disappeared in from two to nine days. In the Rocky Mountain spotted fever cases, the rash appeared on the fifth or sixth day first on the wrists and ankles, then on the back, then becoming general; the palms and soles were frequently involved and the face occasionally. The rash at first consisted of faint roseolous macules, which grew from day to day, became petechial in the second week, and then became purpuric. It was most abundant on the wrists and ankles, legs, upper part of the back, shoulders, arms, chest, abdomen, palms and soles, and the face, in the order named. This type of rash often persisted for several weeks as dusky purplish or yellowish brown spots. The general symptoms at the high point of the disease were prostration, headache, constipation, vomiting, backache, nonproductive cough, and sweats, a definite leukocytosis in the spotted fever cases, and a normal leukocyte count or leukopenia in the typhus cases. A definite history of tick bites within three weeks before the onset of the disease was elicited in 48 per cent of the cases in the spotted fever group, while in 6 per cent the patients had crushed ticks which they had removed from dogs. The typhus cases were sporadic, for the most part, but the Rocky Mountain spotted fever type of cases occurred mostly in areas of from five to twenty miles in diameter. In all these areas, similar cases had occurred in previous years. There were no deaths in the typhus group, but in the spotted fever group there were seven deaths.

The investigators injected 4 cc. of whole blood from three cases, which were identical with or closely related to Rocky Mountain spotted fever, into guinea-pigs. The virus became established, and at the time of the report it had been continued in many generations of guinea-pigs. In studying the relation of these viruses (T and R) to the virus of European typhus fever, it was found that they produced a more severe reaction in guinea-pigs; the incubation period was shorter, the spleen was much larger, and death occurred in the animals apparently uncomplicated by other infections. The T and H strains of virus were studied in relation to the virus of Rocky Mountain spotted fever as found in the Bitterroot Valley in Montana. The reaction of guinea-pigs to the former was less severe. About 25 per cent of the animals died without complications by secondary infections, while, with the virus from Montana, death was the rule. The scrotum of guinea-pigs injected with virus from Montana was commonly involved, while scrotal involvement was noted only once in guinea-pigs inoculated with the T and H strains. The appearance of the spleen, however, was almost identical and guinea-pigs that recovered from injections with the T and H virus developed a definite immunity to subsequent inoculation with the virus from Montana.

Rocky Mountain spotted fever, which has been known to exist in the Bitterroot Valley of Montana for a long time, is transmitted through the bite of a tick. Previous investigations made from time to time have indicated that the endemic area was gradually becoming larger and was including many of the Western states. It was predicted years ago that the disease might appear in a much wider area. While this dis ase probably will not appear in epidemic form, the inves-

1. Badger, L. F.; Dyer, R. E., and Rumreich, A.: An Infection of the Rocky Mountain Spotted Fever Type, Pub. Health Rep. **46**: 463 (Feb. 27) 1931.
2. Rumreich, A.; Dyer, R. E., and Badger, L. F.: The Typhus-Rocky Mountain Spotted Fever Group, Pub. Health Rep. **46**: 470 (Feb. 27) 1931.

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tigations of the United States Public Health Service are of great interest. They will serve to help clear up another obscure type of disease and will place the public in the eastern part of the United States on guard against being bitten by ticks.

A MORPHOLOGIC BASIS FOR TISSUE RESISTANCE

The customary discussions of acquired immunity or resistance to harm refer to the phenomena that are conspicuous in the course of infectious diseases. The physiologic activity of body cells may be promoted so as to aid in the elimination of toxic products. Substances that counteract toxins or damage infectious agents may be generated in the organism. Wandering leukocytes of the infected host may become more abundant and more active. MacNider [1] has recently pointed out, however, that the resistance which may develop in the higher animals against certain drugs and chemical poisons cannot be explained by any of the mechanisms mentioned. His studies at the University of North Carolina point to the possibility of an entirely different principle being involved in the acquired tolerance to noxious agents. It is well known [2] that uranium in the form of one of its salts is one of the oldest substances to be used experimentally to induce a renal injury either for the purpose of obtaining acute and chronic renal changes comparable to those developing in man or for the purpose of inducing such changes and attempting to correlate the histologic observations with the renal functional response. The seat of renal damage is largely confined to the epithelium of the proximal convoluted tubules. There is a corresponding functional expression of this pathologic condition. Polyuria with an albuminous urine and granular casts usually ensues.

In many instances functional recuperation takes place, its rapidity varying greatly in different cases. In MacNider's experiments the epithelium of the convoluted tubules showed two entirely different types of repair. The first type is characterized by the formation through regeneration from less severely injured convoluted tubule cells of an epithelial replacement similar to cells normal for this part of the tubule. The second and more usual type of repair was by an entirely different type of flattened cell atypical for this location in the tubule. Subsequent intoxication in animals exhibiting the first type of repair is usually serious. They rarely survive a second exhibition of the poison. The histologic study of renal tissue from such animals shows a repetition of the acute epithelial injury in the convoluted tubules. The regenerated cells of the normal type in this segment of the tubule become edematous and necrotic. In the atypical type of recoveries in which the repair process of the tubules has failed to bring return to a functional normal, there has appeared an ingrowth into the tubules of a flattened, nonspecialized type of cell or an ingrowth of an undifferentiated syncytial layer of cell substance containing large, deeply staining nuclei. Mototic figures are frequently found in either type of epithelial replacement.

Curiously enough, animals that have regenerated an aberrant type of tubule epithelium become far more resistant to subsequent doses of uranium. In the words of its discoverer, MacNider, the morphologic basis for this resistance on the part of the kidney to uranium has been associated with the type of epithelial repair to the convoluted tubules and the extent to which this repair has taken place. Those animals with a chronic nephritis in which the epithelial replacement has been largely effected by a relining of the tubules with a flattened, nonspecialized type of cell have shown functionally the highest tissue resistance against repeated intoxications by uranium. This type of cell is resistant to the toxic action of the poison. It fails under its influence to become edematous and necrotic. These experiments, MacNider concludes, would not indicate the acquisition on the part of the animals of an immunity to uranium but the substitution in the kidney, as a result of a process of repair, of a type of epithelial tissue atypical for the convoluted tubules, which either fails to secrete uranium and subject itself to an injury from the substance or is resistant to it during secretion. Such changes in cell types in the kidney may be looked on as a morphologic defense mechanism giving to the organ an acquired tissue resistance, which varies in degree for subsequent injuries from the same chemical substance.

BLOOD CULTURES AND THEIR FUNCTION

In bacterial endocarditis, sinus thrombosis, the septicemias and other similar conditions, methods of blood culture easy to apply are satisfactory to a gratifying degree. In certain of the acute infections such as typhoid, pneumonia, and epidemic meningitis the causative organism can be recovered from the blood stream early in the infection in a high percentage of cases. In the latter group, however, it is rarely necessary to obtain a culture from the blood to establish diagnosis. When obtained, it is more rarely of benefit in the treatment of disease.

The importance of blood cultures is being constantly reemphasized by the persistent attempts to cultivate organisms from the blood in the rheumatic and arthritic conditions. Some observers have apparently succeeded, but others, no doubt equally careful in their technic, have failed to corroborate them. Confidence that the causative agent of rheumatic fever or some of the forms of arthritis can be discovered in this way is, however, perhaps overestimated. In many of the acute infectious diseases the responsible microbe can be isolated from the blood only with difficulty and irregularity. It is

1. MacNider, W. deB.: The Morphological Basis for Certain Tissue Resistance, Science **73**: 103 (Jan. 23) 1931.
2. MacNider, W. deB.: Urine Formation During the Acute and Chronic Nephritis Induced by Uranium Nitrate, Harvey Lectures **24**: 82, 1930.

therefore by no means certain that bacteremia occurs sufficiently often in the more chronic rheumatic and arthritic conditions to allow of any reliability in obtaining the bacterium, if such exists, from the blood stream. Nye and Waxelbaum,[1] who have recently registered the failure of their attempts to isolate organisms from the blood in these conditions, state the same principle: "To consider that these same streptococci remain in or about the affected joint to such an extent that they are found in the blood stream in cases of chronic infectious arthritis of years' duration demands a rather unique conception." Moreover, it is by no means certain that the disease entity known by that name is a single disease in the sense of having a single microbic etiology.

The factors that contribute to finding organisms in blood cultures are numerous. Among these may be mentioned the presence of organisms in the blood unrelated to the disease process in question; variation in the time and of the circumstances at which organisms are present in the blood; the filtration of organisms present in part of the blood stream so that they are not found in another,[2] and contamination during various phases of the technic. Though there are many others, the latter probably deserves premier consideration because of the fact that it is the most frequent ground for criticism applied to any positive bacteriologic results. Thus Nye and Waxelbaum state that certain evidences "point to the probability, even certainty, of streptococci occurring in some cultures as contaminants, and the work of Olitsky and Long and of Long, Olitsky and Stewart has clearly demonstrated that the air contamination of ground material with nonhemolytic green producing streptococci can occur just as easily as with diphtheroids and staphylococci. It is obvious, in such cases, that the types of organisms recovered are dependent on the flora of the air of the laboratory or of the throat of the laboratory worker, and this point may well explain the differences in the cultural findings under consideration." On the other hand, those who obtain organisms from the blood generally consider the failure of others to be due to inadequate technic. Thus, Kracke and Teasley [3] consider the chief factor in the unsatisfactory results of blood cultures to be due to failure to dilute sufficiently, or fix the complement, and thus reduce the antibacterial action of the blood itself. Whether this or some other technical inferiority is the correct explanation is not yet known.

Over the finding of organisms in the blood, over their nature and significance, general disagreement reigns as far as the diseases of uncertain etiology are concerned. That a more exact understanding of the nature of some diseases is to be obtained by this method is to be hoped. It seems scarcely likely, however, that this is the most promising method of attack for several of the conditions which have been studied intensively in this way over a number of years and in many different laboratories.

1. Nye, R. N., and Waxelbaum, E. A.: Streptococci in Infectious (Atrophic) Arthritis and Rheumatic Fever, J. Exper. Med. **52**: 885 (Dec.) 1930.
2. Ottenberg, Reuben: Differential Blood Cultures, J. A. M. A. **94**: 1896 (June 14) 1930.
3. Kracke, R. R., and Teasley, H. E.: The Efficiency of Blood Cultures, J. Lab. & Clin. Med. **16**: 169, 1930.

Current Comment

A GOVERNOR LOOKS AT CHIROPRACTIC

Governor Buck of Delaware has returned to the legislature, without his approval, a bill to create a board of chiropractic examiners and to regulate the practice of chiropractic. His summarization of the reasons for his veto is so clear and terse that it should be read by the legislators and governors of every state that is threatened or already afflicted with this cult. His statement follows:

> The purpose of the act, as I understand it, is to legalize the practice of chiropractic in this state. Practitioners of this cult are not recognized now. Do they profess to be doctors in the same sense of the term as is commonly understood to apply to men and women of the medical profession? Insofar as I am able to determine, there is not a recognized medical school in the country that includes in its curriculum a course in chiropractic. This fact in itself seems singularly significant.
>
> Even to the lay mind the idea that all disease of whatever character is due to spinal displacements of a mild sort, and that cures of such ailments as tuberculosis, smallpox, diphtheria, scarlet fever and others can be effected by manipulation and fingering of the spine is preposterous.
>
> Before returning this bill to you I have satisfied myself that the training and education a chiropractor, or drugless healer, needs to practice his art does not fit him properly to advisedly treat the sick, inasmuch as he is not qualified to diagnose ailments nor recognize communicable diseases and to take measures to control them. He is therefore an opponent to the department of health.
>
> Wherefore, it seems to me it would be inconsistent for the legislature to appropriate, as it will do, money for the state board of health, which board is trying to eradicate communicable diseases, and at the same time legalize the practice of a cult which does not believe in the germ theory of a disease but does teach and believe that such diseases as scarlet fever, etc., are due to a distracted vertebra and the method to prevent and cure such disease is to see that everybody has a normal spine.

SPERMATIC TRANSMISSION OF EXPERIMENTAL ALLERGY

The growing conviction that detailed experimentation in immunogenetics must precede a final theory of immunity is strengthened by the apparent demonstration in the Robert Koch Institute, Berlin, of spermatic transmission of a specific subimmunity. Forty years ago, Ehrlich initiated breeding experiments in this field. He immunized male mice against abrin and tetanus toxin and then bred them with normal females. The young born of such unions did not show any demonstrable specific immunity, from which Ehrlich concluded that adult or embryonic specific antibodies or antibody potentials are not transferred by the male germ cell. The word anaphylaxis had not yet been coined. The possible connection between hypersusceptibility and immune states was still unsuspected. Ehrlich therefore disregarded his collateral observation that while the young of his immune fathers did not show specific immunity they showed the opposite effect, being less

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resistant to toxins than his normal controls. For thirty years this observation was unconfirmed. Otto of the Robert Koch Institute then reared about a dozen young mice from normal mothers and ricin-immune fathers and found five of them distinctly hypersensitive to ricin. His current paper [1] details subsequent immunogenic studies extending over a period of years. Otto immunized male mice by prolonged feeding with a relatively nontoxic formalized ricin-toxoid and bred them with normal mothers from one day to several months after the final toxoid feeding. A few of the children of such unions were used as fathers for second-generation mice. First-generation mice were tested with borderline doses of ricin, doses that killed about 30 per cent of his normal controls. With these doses, first-generation mice born to freshly immunized fathers showed a 70 per cent mortality. With a slightly different test dose second-generation mice showed a 65 per cent ricin-mortality, as contrasted with 45 per cent for his normal controls. Control tests with snake venom showed the same venom mortality (50 per cent) for both the normal and the experimental series. The number of these venom tests, however, was too small to suggest more than a possible specificity. Otto's general conclusion is that he is dealing with an inherited subimmunity, possibly specific, that is brought about by specific injury to ancestral male germ plasm. Equally suggestive is Otto's study of mice sired by ricin-immune fathers three or more months after the final toxoid feeding. Here the ricin mortality was but 33 per cent, approximately the same as with his normal controls.

1. Otto, R.: Sind die Jungen mit Ricin immunisierter Mäuseväter giftüberempfindlich? Ztschr. f. Hyg. u. Infektionskr. **111**: 644 (Oct.) 1930.

Association News

THE PHILADELPHIA SESSION

Annual Tournament of the American Medical Golfing Association

The Philadelphia Committee on Arrangements has decided to hold the seventeenth annual tournament of the American Medical Golfing Association, Monday, June 8, over the Aronomink course instead of at the Huntington Country Club as announced in the brochure of the association which was mailed to members, March 11, from the executive office in Detroit. The Aronomink course is one of the most modern in the district and is in spendid condition. It is amply difficult and reasonably fair, has an attractive club house and, in all respects, is an excellent place for the tournament. The officials at Aronomink and the local committee are doing everything possible to make the tournament a success. The Philadelphia men composing the Local Committee on Arrangements are Drs. John W. Croskey, chairman, Willis F. Manges, Fred H. Leavitt, Frank J. Kelly and Damon B. Pfeiffer.

Railroad Transportation to Philadelphia

Passenger associations representing the transportation systems of the United States have granted a rate of one and one-half fare for the benefit of the members of the Association who will attend its anunual session in Philadelphia, June 8 to 12.

In order to secure the reduced rate it will be necessary for members to have a Certificate to be endorsed by the Secretary of the Association and validated by a representative of the railroads at the Registration Bureau, which will be located in the Municipal Auditorium at Philadelphia. These Certificates must be secured from railroad ticket agents at the time tickets to Philadelphia are purchased. The Certificates, when properly certified by the Secretary of the Association and validated by the agent of the railroads, will entitle the holders to purchase return tickets, over the same route traveled to Philadelphia, at one-half the regular fare. The reduced rate cannot be secured without a properly certified and validated Certificate.

Those members of the Association who reside in the Pacific Coast states will have the benefit of excursion fares which are established for the summer season each year. Fares authorized from principal Pacific Coast points to Philadelphia and return are as follows:

FROM	
San Francisco, Calif.	$149.22
Los Angeles, Calif.	149.22
San Diego, Calif.	149.22
Portland, Ore.	149.22
Seattle, Wash.	149.22
Spokane, Wash.	143.97
Tacoma, Wash.	149.22
Vancouver, B. C.	149.22
Victoria, B. C.	149.22

Corresponding fares are authorized from other points in the Pacific Coast states.

It will not be necessary for those residing in the states on the Pacific Coast to secure Certificates, but they should obtain specific information about the conditions under which the summer rates are made available.

Hotel Reservations at Philadelphia

For the convenience of those who wish to make hotel reservations in Philadelphia for the annual session of the Association, a list of hotels and a form to be used in securing reservations will be found in the advertising pages of THE JOURNAL this week. Dr. Frederick S. Baldi, chairman of the Subcommittee on Hotels of the Local Committee on Arrangements, gives assurance that there will be comfortable accommodations for all who go to Philadelphia but points out that it is desirable to make reservations at the earliest possible time. All applications will receive the promptest possible attention, and effort will be made in every instance to make a reservation at the hotel indicated by the applicant as his first choice. It is desirable, however, that each applicant should indicate a second choice of hotels in case it is not possible to secure the kind of accommodation desired at the hotel of first choice.

CONTRIBUTIONS FOR MEMORIAL SALON IN PERSHING HALL

The sum contributed this week to the Pershing Hall Memorial in Paris brings the total to $2,293.60. A list of those who have contributed during the current week follows:

M. R. Wilkinson, M.D., Oconomowoc, Wis.
Andre L. Stapler, M.D., Chicago
Robert B. Harkness, M.D., Houghton, Mich.
E. L. Merritt, M.D., Fall River, Mass.
Muskegon County Medical Society (Michigan)
Arthur F. Heyl, M.D., New Rochelle, N. Y.
Edwin Beer, M.D., New York
Colin R. Clark, M.D., Youngstown, Ohio
Reed Wallace Teed, M.D., Owosso, Mich.
Jackson County Medical Society, Jackson, Mich.
William Martin Cason, M.D., Sandersville, Ga.
Victor P. Diederich, M.D., Hot Springs, Ark.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:45 on Tuesday, 9:15 on Thursday and 10:30 on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

April 6. Who Says So?
April 7. Cosmetics and Your Skin.
April 9. The Farm Woman's Leisure.
April 11. How Does Your Child Talk?

Five minute health talks may be heard over the Columbia Broadcasting System daily, except Sundays and holidays, from 12 to 12:05 p. m., Central Standard Time.

The program for the week is as follows:

April 6. Who Says So?
April 7. Carbon Monoxide Again.
April 8. American College Athletics.
April 9. Magical Medicine.
April 10. What to Do for Poisoning.
April 11. The Fad.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

State Medical Meeting at Birmingham, April 21-24.—The sixty-fourth annual session of the Medical Association of the State of Alabama will be held at Birmingham, April 21-24, with headquarters at the Thomas Jefferson Hotel, and under the presidency of Dr. William G. Harrison, Birmingham. The guest speakers will be Drs. Alfred Blalock, Nashville, Tenn., on "Mechanism of the Production and Treatment of Shock"; Madison Hines Roberts, Atlanta, "Some Studies in Congenital Syphilis"; Joseph B. Greene, Asheville, N. C., "Ear, Nose and Throat in Relation to General Diseases"; Job T. Cater, Chicago, "Relation of the Eye to General Disease"; William A. Smith, Atlanta, "Management of the Epilepsies"; Lucius E. Burch, Nashville, Tenn., "Management of Menstrual Disorders of Interest to the General Practitioner," and Olin West, Secretary, American Medical Association, Chicago, "Some Phases of Medical Ethics." Dr. Robert S. Cunningham, professor of anatomy, Vanderbilt University Medical School, Nashville, will deliver the Jerome Cochran Lecture, Wednesday, on "Studies on the Pathology of Tuberculosis and Syphilis." There will be a symposium on tuberculosis, and motion picture films will be presented. A feature of the public meeting, Wednesday, will be a pageant illustrating the history of medicine, given under the direction of Dr. James R. Garber, Birmingham, president of the Jefferson County Medical Society. This society will act as host to the association.

ARKANSAS

Funds for Medical School Building.—Under the terms of a measure passed by the state legislature in February, appropriating $1,000,000 for the University of Arkansas, the school of medicine will receive $275,000 for a new building to be used for laboratory and teaching purposes. This is said to be the first building appropriation that the school has received in fifty-two years.

CALIFORNIA

Licenses Restored and Revoked.—The board of medical examiners at its meeting in Los Angeles, February 2-5, restored the license of Dr. James Terrell Brown, Los Angeles, to practice medicine in the state, returning him, however, to the terms of a probation imposed July 13, 1926, under which he was required to give up his alcohol and narcotic permits. The license was revoked, Oct. 21, 1930. The board revoked the license of Dr. Roy L. Buffum, Long Beach, after he pleaded guilty to violation of the terms of a five years' probation imposed July 17, 1929, on a narcotic charge. The license of Dr. Ernest M. Freeman, Long Beach, was revoked on the charge of having performed an illegal operation.

Society News.—A symposium on influenza was held before a joint meeting of the section on medicine and pediatrics of the San Francisco County Medical Society and the San Mateo County Medical Society, March 3; the speakers were Drs. Charles L. Connor, Arthur L. Bloomfield and Jacob C. Geiger. A symposium on tuberculosis was conducted at the March 10 meeting of the San Francisco County Medical Society, the speakers being Drs. William C. Voorsanger, Roland P. Seitz and Lloyd Bryan.——Drs. Walter P. Bliss, Pasadena, and Rafe C. Chaffin presented "Relapsing Fever in Los Angeles and Vicinity" and "A Discussion of the Value of Uterosalpingo-Urography," respectively, before the Los Angeles County Medical Association, March 5.——Dr. Max J. Abramson, among others, addressed the Los Angeles Obstetrical Society, March 10, on "Stillbirths of Undetermined Etiology."——Dr. Clifford B. Walker began a graduate course of eight lectures in perimetry at the Los Angeles County General Hospital, March 5. It is planned to hold one lecture each week. The fee for the course is $25. Information may be had from Dr. Eugene Ziskind, 718 Professional Building, Los Angeles.——Dr. George W. Pierce, San Francisco, addressed the Fresno County Medical Society, January 6, on plastic surgery.——Dr. John V. Barrow, Los Angeles, lectured before the Ventura County Medical Society, January 13, on "Intestinal Protozoa."——Dr. Harold K. Faber, San Francisco, addressed the San Diego County Medical Society, March 10, on poliomyelitis.——The Los Angeles Surgical Society was addressed, March 13, by Drs. Hans E. Schiffbauer on "Resection of the First Rib, Anteriorly, for Apical Cavities"; George Franklin Farman, "Surgery of the Kidney During Pregnancy," and Alfred E. Gallant, "End Result of Compression Fracture of a Vertebra."——Dr. Arthur Dean Bevan, Chicago, addressed the Los Angeles County Medical Association, March 19, on "Present Status of the Anesthesia Problem."

DELAWARE

Psychiatric Observation Clinic.—A psychiatric observation clinic, with facilities for forty patients, was opened at the Delaware State Hospital, Farnhurst, February 12. This is said to be one of the few institutions where a period of observation is required before commitment. Any physician licensed in the state may have his patients admitted to the clinic. A patient admitted to the observation clinic shall remain for a period not to exceed four weeks, when, if suffering from a psychosis which requires prolonged hospitalization, the case shall be reported to the state board of trustees of the Delaware State Hospital. Two qualified and licensed physicians shall then determine whether the patient shall be judged insane and committed to the state hospital. This institution has also recently completed a modern fire-proof building of sixty beds for continued treatment cases.

DISTRICT OF COLUMBIA

Memorial to Colonel Hoff.—A memorial fountain in honor of the late Col. John Van Rensselaer Hoff, to be built on the military reservation of the Army Medical Center by his widow, Mrs. Lavinia D. Hoff, has been approved by the assistant secretary of war. Colonel Hoff, who died in 1920, entered the army in 1874 as assistant surgeon and served in many parts of the world before his retirement in 1912. He received many foreign decorations and was the author of works on medical practice and sanitation.

FLORIDA

Personal.—At the recent annual staff meeting of the Duval County Hospital in Jacksonville, attended by the Duval County Welfare Board, an oil portrait of Dr. John E. Boyd was presented to the hospital. Dr. Boyd has been connected with the hospital since 1899, having been president of the institution from 1917 to 1925, when he retired from active service, remaining on the staff as consulting surgeon. The presentation speech was made by Dr. James Knox Simpson, who succeeded Dr. Boyd as president.——Dr. Fritz A. Brink, Jacksonville, was recently presented with a twenty year service medal by the state board of health.

ILLINOIS

Personal.—Dr. William F. Burres, Urbana, was recently made a life member of the Champaign County Medical Society, of which he has been a member since 1884. At present he is the only life member.——The trustees of the University of Illinois have announced that the inauguration of Harry Woodburn Chase, LL.D., as president of the university, will take place Friday, May 1, at Urbana.——Dr. Walter S. Swan, a resident of Harrisburg since 1881, celebrated his fifty-fourth year in the practice of medicine, March 10.

Annual Clinic.—The second annual clinic at the Edward Hines, Jr., Diagnostic Center, Hines, was held, January 15, by medical officers of the sixth corps area in conjunction with army and navy medical reserve officers of Cook County and the medical department of the Illinois national guards, in honor of Col. Paul Churchill Hutton, recently appointed surgeon to the sixth corps area, and Capt. Norman T. McLean, commanding officer of the U. S. Naval Hospital, Great Lakes, Ill. Dr. Walter H. Watterson of the staff of Edward Hines, Jr., Hospital, gave an address on selection of cases for pneumothorax, phrenectomy and thoracoplasty, and Dr. Carl A. Hedblom, Chicago, gave an illustrated lecture on the technic of operations on the chest. The 400 officers who attended the clinic were entertained later at a dinner, at which Col. Thomas H. Scott, director of the diagnostic center, was toastmaster, and Colonel Hutton and Captain McLean were the principal speakers.

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Bills Introduced.—S. 268 proposes to require physicians attending persons suffering from injuries caused by firearms, and superintendents of hospitals in which patients of that class are treated, to report such facts to designated police authorities. S. 278, to amend the law concerning the registration of births and deaths, proposes that in county seats of over 100,000, local registrars of vital statistics shall not be required to file with the county clerks copies of certificates of births, stillbirths and deaths, but shall make, file, index and permanently preserve in their own respective offices a complete and accurate copy of each birth, stillbirth and death certificate registered by them. S. 361 proposes to authorize the department of registration and education to appoint an osteopathic examining committee, to consist of five reputable practitioners of osteopathy. S. 367 proposes to authorize certain corporate authorities having the control or supervision of any public park or parks to permit the erection and maintenance of child welfare sanatoriums in public parks. H. 554 proposes to make it unlawful for any dentist, or for any person in a dental school or clinic, to use any dental handpiece, drill holder, or drill handle in the treatment of any person, unless such dental equipment is first sterilized.

Chicago

Bacon Lectures Postponed.—Dr. Herbert M. Evans of the University of California Medical School, Berkeley, who was to give the Bacon lectures at the University of Illinois College of Medicine, March 31 and April 1, is suffering from an attack of influenza; the lectures have been postponed until further notice.

Another Series of Summer Clinics.—The Chicago Medical Society announces that two weeks of postgraduate clinics will be held under its auspices at the Cook County Hospital, June 22-July 3. Physicians who are interested are requested to communicate with the secretary of the society, 185 North Wabash Avenue, Chicago, for further information.

Society News.—Dr. Loyal E. Davis addressed the Chicago Ophthalmological Society, March 16, on "Ophthalmic Syndromes of Certain Intracranial Tumors."——Drs. Isidor Harrison Tumpeer and Meyer R. Lichtenstein addressed the Chicago Society of Allergy, March 16, on "Arthus Phenomenon" and "Tuberculin in Relation to Allergy," respectively. ——Dr. Harry A. Singer addressed the Chicago Pathological Society, March 9, on "Primary, Isolated Lymphogranulomatosis of the Stomach."——Drs. Jacob A. Bargen and Harry M. Weber, both of Rochester, Minn., addressed the Chicago Roentgen Society, March 11, on "Relation of Colitis to Polyposis" and "Earliest Signs of Colonic Malignancy," respectively. ——The Chicago Tuberculosis Institute gave a dinner, March 12, in honor of Prof. Francis de Groer, director of children's clinic, University of Lemberg, Poland. Professor de Groer spoke on "Social Importance of Tuberculosis in Childhood," and Dr. Jay Arthur Myers, Minneapolis, on "Tuberculosis in Childhood."——The Chicago Neurological Society was addressed, March 19, among others, by Dr. Ralph W. Gerard on "Nerve Metabolism and the Problem of Degeneration."——Dr. Margarete M. H. Kunde addressed the Chicago Society of Internal Medicine, March 23, among others, on "Blood Changes in Experimental Hyper- and Hypothyroidism."——Drs. Fred L. Adair and William H. Rubovits addressed the Chicago Gynecological Society, March 20, on "Syphilis of the Fetus and Newly Born Infant" and "Radical Episiotomy," respectively, and Dr. Joseph B. De Lee presented a moving picture demonstration, "Surgical Anatomy and Episiotomy with Modeling Clay."—— A joint meeting of the Illinois Society for Mental Hygiene and the Chicago Medical Society was addressed, March 25, among others, by Drs. George A. Wiltrakis and Daniel Haffron on "Acute Medical and Surgical Service of a State Hospital" and "Hemoclastic Crises in Mental Patients," respectively.—— The Chicago Urological Society was addressed, March 26, by Drs. Leander W. Riba on "Intra-Urethral Chancre"; Andrew McNally, "Neoplasms of Testes," and Otto Saphir, "Neoplasms of Kidney."

INDIANA

Society News.—Dr. Louis H. Segar, Indianapolis, addressed the Tippecanoe County Medical Society at La Fayette, March 12, on "Recent Advances in Pediatrics."——Dr. M. Herbert Barker, Chicago, addressed the Northeastern Indiana Academy of Medicine, Kendallville, February 26, on nephritis.—— Dr. Edwin N. Kime addressed the Indianapolis Medical Society, March 31, on "Status of Biophysics in Modern Medical Practice," and Dr. Percy E. McCown discussed the etiology and possible prevention of prostatic hypertrophy.

Child Health Conferences.—Two Indiana counties have held conferences on child health following the state conference, January 15-17, which in turn grew out of the White House Conference on Child Health and Protection. Dr. Charles P. Emerson, dean and professor of medicine, Indiana University School of Medicine, Indianapolis, addressed the meeting in Delaware County, March 3, on physical development of the child, and Dr. Harold S. Hulbert, Chicago, on the work of child guidance clinics. Dr. Ada E. Schweitzer, director of the child health department, state board of health, spoke at the Monroe County conference, February 27, on prenatal and maternal care, and Dr. Raymond M. Borland, Bloomington, discussed prevention of communicable disease and nutritional disorders.

IOWA

Society News.—Dr. Frank L. Williams addressed the Des Moines Academy of Medicine and the Polk County Medical Society, March 31, on "Relation of State Medicine to Civil Practice." Dr. Thomas A. Burcham gave "A Report of Medical Legislative Activities."——A joint meeting of the Boone and Story county medical societies in Nevada, January 22, was addressed by Drs. Ross E. Gunn on "Insulin as Used in the Treatment of Infection" and Ben T. Whitaker, both of Boone, on "The X-Ray, Its Uses in Diagnosis."——Dr. Henry D. Holman, Mason City, among others, addressed the Cerro Gordo County Medical Society, February 17, on "Physical Therapy in Relation to Medicine and Surgery in the Field of Gynecology."——Dr. Jonathan N. Goodman, Osceola, addressed the Clarke County Medical Society in Osceola, February 19, on "Simplified Infant Feeding."

KANSAS

Society News.—The February meeting of the Sedgwick County Medical Society, Wichita, was given in honor of Dr. David W. Basham, who has completed forty-seven years of practice. Dr. Basham has six sons studying medicine.—— Drs. Everett R. Deweese and Frederick B. Campbell, both of Kansas City, Mo., addressed the Franklin County Medical Society, Ottawa, recently, on x-ray interpretation and treatment of rectal diseases, respectively.

KENTUCKY

Health at Louisville.—Telegraphic reports to the U. S. Department of Commerce from eighty-one cities with a total population of 36 million, for the week ended March 14, indicate that the highest mortality rate (36.4) appears for Louisville, and the rate for the group of cities as a whole, 13.8. The mortality rate for Louisville for the corresponding period last year was 11.7, and for the group of cities, 13.2. The annual rate for the eighty-one cities for the eleven weeks of 1931 was 14.1, as against a rate of 13.3 for the corresponding weeks of 1930. Caution is necessary in the interpretation of these figures, as weekly figures fluctuate widely. The fact that some cities are hospital centers for large areas outside the cities or that they have large Negro populations may tend to increase the death rate.

State Board Reciprocates with Iowa.—Dr. Arthur T. McCormack, secretary, State Board of Health of Kentucky, recently announced that reciprocity has been established with the State Board of Medical Examiners of Iowa.

Society News.—Dr. Frank M. Stites, Jr., spoke on "More Recent Concepts of Nephritis" before the Jefferson County Medical Society, March 2; a symposium on toxic goiter was conducted before the society, March 16, by Drs. Archibald M. McKeithen, Virgil E. Simpson, Ulysses H. Smith and John R. Wathen.

LOUISIANA

Health at New Orleans.—Telegraphic reports to the U. S. Department of Commerce from eighty-one cities with a total population of 36 million, for the week ended March 21, indicate that the highest mortality rate (19.9) appears for New Orleans, and the rate for the group of cities as a whole, 13.6. The mortality rate for New Orleans for the corresponding week of 1930 was 19.6 and for the group of cities, 13.3. The annual rate for the eighty-one cities was 14.1 for the twelve weeks of 1931, as compared with 13.3 for the corresponding weeks of 1930. Caution is necessary in the interpretation of these figures, as weekly figures fluctuate widely. The fact that some cities are hospital centers for large areas outside the cities or that they have large Negro populations may tend to increase the death rate.

MASSACHUSETTS

Society News.—The Webster Medical Club, with the Medical Club of Southbridge, the Medical Club of Putnam, Conn., and the Wachusett Medical Improvement Society, Holden, held a joint meeting, February 25, with the following speakers, all of Worcester: Drs. Andrew E. O'Connell, on intravenous urography; John M. Fallon, radium treatment in uterine bleeding; John J. Dunphy, diagnosis of extra-uterine pregnancy; James C. McCann, functional and organic dyspepsia, and William F. Lynch, appendicitis in children under 7 years.——Drs. Bronson Crothers and Edward C. Vogt, Boston, were on the program of the New England Roentgen Ray Society, March 20, speaking on "Encephalography—Its Indications and Use in Children" and "Roentgenological Diagnosis of Lead Poisoning," respectively; Dr. Charles F. McKhann, Jr., Boston, discussed lead poisoning from the standpoint of the pediatrician.——At the New England Physical Therapy Society, Drs. George B. Rice and William D. Rowland discussed the uses of physical therapy in otolaryngology and in diseases of the eye, respectively, March 18, in Boston.——Drs. Clifton T. Perkins, Worcester, addressed the Massachusetts Psychiatric Society, February 25, on "Diathermy in the Treatment of Dementia Paralytica."

MICHIGAN

Personal.—Dr. Charles A. Blair, Morenci, was tendered a complimentary dinner, January 28, by the Lenawee County Medical Society; he was made an honorary life member of the society. Dr. Blair has retired from active practice, it is reported, after forty years' service.—— Dr. John J. Walch, Escanaba, has been appointed a member of the state board of registration in medicine, it is reported, to succeed the late Dr. William A. Lemire.

Child Guidance Clinics.—A child guidance clinic will be opened in May in Grand Rapids, it is reported. Dr. Milton E. Kirkpatrick, New York, will assume charge as director of the clinic, July 1. The clinic has been financed through a grant from the Children's Fund of Michigan, cooperating with local agencies. The program will include the detection of personality disorders in the young child and the forming of a program which will prevent more serious disorders in later life. A similar clinic is being organized in Flint. It is said that the Children's Fund has been the principal contributor to the $20,000 required to start the Flint clinic.

Lectures for Practitioners.—A series of lectures on communicable diseases is now in progress at Herman Kiefer Hospital, Detroit, under the sponsorship of the Wayne County Medical Society, in conjunction with the Urological, Dermatological and Tuberculosis societies of Detroit. Dr. J. Stuart Pritchard, Battle Creek, gave the first lecture, April 1, on "Clinical Symptoms of Tuberculosis," and speakers for the coming lectures are as follows: April 8, Dr. Richard H. Morgan, Detroit, on "Tuberculosis of the Adult"; April 15, Dr. Henry D. Chadwick, Detroit, "Tuberculosis of Childhood"; April 22, Dr. Edward J. O'Brien, Detroit, "The Value of Surgery in Tuberculosis," and April 29, Dr. Bruce H. Douglas, Northville, "Sanatorium Care of Cases of Tuberculosis."

Society News.—Dr. Louis H. Newburgh, Ann Arbor, presented a paper on obesity, which was discussed by Dr. Reuben Peterson, before the Washtenaw County Medical Society, March 26.——Dr. Floyd H. Lashmet, Ann Arbor, addressed the Monroe County Medical Society, March 19, on nephritis. —— Dr. Hugo A. Freund, Detroit, addressed the Saginaw County Medical Society, March 17, on arthritis.——Dr. Alan G. Brown, Toronto, Canada, lectured on solar radiation and its effect on children's diet before the Kent County Medical Society, Grand Rapids, in February.——Dr. Walter I. Werner, Pontiac, presented a symposium on apical and subapical tuberculosis before the Oakland County Medical Society, March 19; Dr. John E. Gordon, Detroit, addressed the society in February on "Prevention and Treatment of Measles" and "Diagnosis of Preparalytic Poliomyelitis."

MINNESOTA

Personal.—Dr. John A. Thabes, Brainerd, has been elected president of the state board of health.

Bills Introduced.—H. 1146 proposes to authorize counties having a population of more than 50,000 and an area of more than 3,500 square miles to erect auxiliary county hospitals. H. 1105 proposes to authorize the establishment in southern Minnesota of a state sanatorium for tuberculous patients.

MISSISSIPPI

Personal.—Dr. Levi A. Barnett, New Albany, who has been health officer of Union County for the past three years, has resigned, effective April 1, to accept a similar position in Leflore County.

Students Oppose Political Control.—The student body of the University of Mississippi recently adopted unanimously a resolution opposing "any system of political control that will continue to injure the standing of the higher educational institutions of Mississippi." As evidence of their convictions, the students pledged themselves to support for state offices only those candidates who favor a plan for the educational control of state institutions of higher education, whereby these institutions may regain their former standing. In addition the resolution proposed that the student body "urge all alumni and student bodies of all state educational institutions and all friends of higher education in Mississippi to support this position."

MISSOURI

Personal.—Dr. Francis M. McCallum, Kansas City, was elected president of the state board of health, January 26; Dr. Horace W. Carle, St. Joseph, vice president, and Dr. James Stewart, Jefferson City, secretary, reelected.—— Dr. Walter C. G. Kirchner, St. Louis, was appointed to the recently created position of medical director of City Hospital; he took office, March 1.

Fiftieth Anniversary of Graduation.—At a banquet in St. Louis, March 3, six of the seven physicians remaining of forty-one who graduated in 1881 from the first three year course given by the St. Louis Medical College, celebrated the fiftieth anniversary of their graduation. Five members of the class reside in St. Louis: Drs. James A. Dickson, Willis Hall, Harvey G. Mudd, Amand N. Ravold and Max C. Starkloff. Dr. Henry J. Harnisch, Flagstaff, Ariz., and Dr. William A. James, Chester, Ill., are the out-of-town members.

Hospital News.—A $2,500,000 hospital for the criminally insane will be erected within the next eighteen months at Springfield on a 500 acre tract of land given by the Springfield Chamber of Commerce. Springfield was selected largely because of the direct rail connection with the Atlanta and Leavenworth penitentiaries, and because its altitude makes possible the treatment of tuberculous patients. Although the largest group of patients will be psychopathic, including those who become mentally abnormal after their commitment to a federal penitentiary, persons suffering from other diseases will also be received at the new institution.

Society News.—Dr. Patrick H. Owens, Kansas City, addressed the Jackson County Medical Society, March 24, on "Eventration of the Left Wing of the Diaphragm" with presentation of case, and Dr. Sam E. Roberts, Kansas City, "The Bronchoscopic Treatment of Pulmonary Diseases." A debate, "Resolved, That the present population tendencies are dangerous to the welfare of the United States," was held at a joint meeting of the women's auxiliary and the society, March 31; Rev. L. M. Birkhead, Kansas City, took the affirmative, and Mr. William H. Launder, Kansas City, the negative side. Dr. Leroy W. Hubbard, Warm Springs, Ga., spoke on "The Story of Warm Springs." A play, "The Doctor's Wife and the Doctor's Life," was presented.——Dr. Norman N. Tobias addressed the St. Louis Medical Society, February 17, on the use and abuse of cosmetics; Dr. Joel E. Goldthwait, Boston, was the speaker, February 24, on "The Challenge of the Chronic Patient to Our Profession."

NEW HAMPSHIRE

Bill Introduced.—H. 284 proposes to create a state cancer committee to establish, organize and conduct cancer clinics throughout the state.

NEW YORK

Bills Introduced.—S. 1596 and A. 2004 propose to accord liens to hospitals treating persons injured by accident, on any judgments, settlements or compromises obtained by the injured persons by reason of such injuries. S. 1617 proposes to require the licensing of all hospitals of two or more beds by the department of charities. A. 2056 proposes to memorialize the United States Congress to enact the necessary legislation for the deportation of aliens convicted of the illegal sale of habit-forming drugs.

Society News.—At the sixty-third annual meeting of the Dental Society of the State of New York, May 12-15, in New

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York, Dr. Milton C. Winternitz, dean and Anthony N. Brady professor of pathology, Yale University Medical School, New Haven, Conn., and H. Edmund Friesell, D.D.S., Pittsburgh, will conduct a symposium on education. Drs. William H. Ross, Brentwood, Eliot Bishop, Brooklyn, Roger H. Dennett and Carson P. Sherwin, New York, will conduct a symposium on prenatal feeding. —— Dr. Harold A. Peck addressed the Albany County Medical Society, January 11, among others, on "Congenital Absence of a Portion of the Esophagus," instead of Dr. John S. McCormick, Albany, as reported in THE JOURNAL, March 14.

Organization of County Health Units Recommended.—In the preliminary report of the New York State Health Commission, appointed by the governor, May 1, 1930, to study the application of the public health law and the administrative activities of the state and local bodies engaged in promoting public health, it is recommended that all villages of less than 5,000 population be included in the jurisdiction of a county board of health, which would have at least three physicians in its membership. The county health commissioner would devote his entire time to the office in counties having a population under the jurisdiction of the board of health of more than 30,000, and in counties having less than 30,000 population the district state health officer would be detailed by the state commissioner to act as county commissioner, according to the plan proposed. The effective date for the appointment of the county board of health should be not later than July 1, 1931, and the appointment of county health commissioners not later than Jan. 1, 1932, the commission recommended. Laws relating to local boards of health would then be amended to abolish all town boards of health, consolidated health districts and village boards of health in villages of less than 5,000 population not later than Jan. 1, 1932, and the public health law amended to remove all reference to these boards.

New York City

Blizzard Class Reunion.—The forty-third anniversary of the graduation from Bellevue Hospital Medical College of the class of '88, the day of the great blizzard, March 12, will be observed with a dinner at the Hotel McAlpin, April 11. If any member of the class did not receive his invitation for the dinner and reunion, he is requested to communicate with Dr. S. Adolphus Knopf, 16 West Ninety-Fifth Street. Dr. David Hunter McAlpin, president of the class, will be host. The reunion was not planned for March 12 because of inclement weather.

Biggs Memorial Lecture.—Dr. George H. Bigelow, commissioner of health of Massachusetts, will deliver the sixth Hermann M. Biggs Memorial Lecture, May 7, at the New York Academy of Medicine. The lectureship, founded by the widow of Dr. Biggs, has until this year been administered by the New York Tuberculosis and Health Association and the Medical Society of the County of New York. Previous lectures were given by Dr. William H. Park, 1925; S. Lyle Cummins, Cardiff, Wales, 1926; Dr. Allen K. Krause, 1927; Charles-Edward A. Winslow, Dr.P.H., 1928, and Dr. John H. Stokes, 1929. There was no lecture in 1930. The title announced for Dr. Bigelow's address is "Will Physicians Practice Preventive Medicine?"

Millions Bequeathed to Hospitals.—Flower Hospital of the New York Homeopathic Medical College and Flower Hospital is to receive 17.5 per cent, about $17,500,000, of the estate, estimated at $100,000,000, left by the will of Miss Ella Virginia Von Echtzel Wendel, who died in New York recently, the last of a family famous for its acquisition of real estate. Among other bequests are the following: Presbyterian Hospital, two shares valued at $1,000,000; Dobbs Ferry Hospital Association, Dobbs Ferry, N. Y., two shares, $1,000,000; National Committee for the Prevention of Blindness, five shares, $2,500,000; St. Christopher's Home for Children, Dobbs Ferry, thirty-five shares, $17,500,000, and New York Society for the Relief of Ruptured and Crippled, thirty-five shares, $17,500,000.

Trial Board for Smoke Offenders.—A trial board for smoke offenders was established in New York, Sept. 26, 1930, with three members: Dr. Thomas Darlington, chairman, and Dr. Alonzo Blauvelt and Mr. Samuel Sargent, associate members. At weekly meetings, beginning October 2, nearly 700 cases of violation of the smoke regulations had been heard up to January 31, it is reported. Flagrant offenders and those who refuse to comply with the orders of the trial board are given summonses to the magistrates' courts. Following a letter from Commissioner of Health Shirley W. Wynne, Chief Magistrate Joseph E. Corrigan informed city magistrates of the importance of maintaining an unpolluted atmosphere and promised effective cooperation in enforcing provisions of the sanitary code.

New Research Laboratory of Rockefeller Institute.—The new laboratory of the Rockefeller Institute for Medical Research, which was recently opened at Sixty-Seventh Street, is a seven story structure, with two basements, standing on a bluff overlooking the East River. The exterior walls are of limestone to the fourth floor, the remaining walls being brick. All laboratories are provided with steam, gas, compressed air, suction and electricity. Numerous refrigerating rooms and incubator rooms are centrally located in the building which is connected to other institute buildings by service tunnels. There is a four story wing for animals connected with the main animal house, which is six stories high. At present, five sec-

tions of the division of pathology and bacteriology occupy space in the new North laboratory. These units are under the direction of Drs. Karl Landsteiner, Florence R. Sabin, James B. Murphy, Peyton Rous and Wade H. Brown. Unused space is being left free from partitions pending future development.

Society News.—Drs. William Crawford White and Howard A. Patterson jointly presented a paper on "Late Results of Simple Suture in Acute Perforated Duodenal Ulcer" before the New York Surgical Society, March 11. Dr. Frank E. Adair addressed the society, March 25, on "Results of Treatment by Surgical and Radiation Methods of Operable Mammary Carcinoma at the Memorial Hospital for the Ten Years, 1916 to 1926."——Dr. Sophie J. Kleegman, among others, addressed the Women's Medical Association of New York City, March 11, on "Nonoperative Treatment of Leukorrhea."——Dr. Norman Plummer discussed the present status of the serum treatment of pneumonia before the Medical Association of the Greater City of New York, March 16.——Dr. Howard Sheffield Jeck addressed the South Brooklyn Medical Society, March 19, on "Present-Day Methods of Diagnosis and Treatment of Urology."——Dr. Meyer A. Rabinowitz addressed the Medical Society of the County of Kings, March 17, on "Atrophy of the Liver Due to Cinchophen Preparation" and Dr. Arnold Gesell, New Haven, Conn., "Medical Aspects of Child Development Research."—— Dr. William P. Murphy, Boston, addressed the Brooklyn Society of Internal Medicine, March 20, on secondary anemias. —— Four physicians presented the program at a regional meeting of the American Statistical Association, March 26. Dr. Willard C. Rappleye spoke on "Scientific and Social Applications of Morbidity and Mortality Data"; Dr. George Gray Ward, Jr., on "Surgical Accounting"; Dr. H. B. Logie, on "The Scientific Basis of Morbidity Statistics," and Dr. George Draper, on "The Relation of Constitution to Disease."——Dr. William Bierman was elected president of the New York Physical Therapy Society, March 4, and Dr. Madge C. L. McGuinness, secretary.

NORTH CAROLINA

Bill Introduced.—S. 450 proposes to provide that any person obtaining credit fraudulently from any hospital shall be guilty of a misdemeanor.

OKLAHOMA

Bill Introduced.—H. 404 proposes to provide for the establishment of a state hospital for the treatment of indigent patients.

Society News.—Dr. Ernest Sachs, St. Louis, addressed the Muskogee County Medical Society, February 24, on "Brain Tumors." The society was addressed, February 9, among others, by Dr. Basil A. Hayes, Oklahoma City, on "Clinical Types of Nephritis."——Dr. Daniel Y. McCary, Holdenville, was recently appointed health officer of Hughes County, succeeding Dr. William D. Atkins.

OREGON

Society News.—Dr. Moses E. Steinberg, Portland, addressed the Polk-Yamhill-Marion Medical Society, January 6, at Salem, on "Errors Committed in Surgery of the Stomach," and Dr. George C. Knott, Independence, "Present-Day Problems of the Small Town Doctor."——A symposium on epilepsy was conducted before the Portland City and County Medical Society, January 7, by Drs. Merl L. Margason, Laurence Selling and Frank R. Menne.——Dr. Rachel C. Sparks, formerly of the health service of the University of Kansas, has been appointed women's physician at Oregon State Agricultural College.

PENNSYLVANIA

Forty-Two Unlicensed Practitioners Convicted.—The state board of medical education and licensure reports that forty-two unlicensed practitioners have recently been convicted and sentenced in Pennsylvania. The Philadelphia *Record* through a campaign against unethical practitioners is said to have been instrumental in obtaining evidence for the conviction of thirty-five in Philadelphia with sentences as follows:

Three months in jail and a fine of $350:
Mario L. Pomendale, Tasker Street, near Eleventh Street.

Sixty days in jail:
Edgar L. Graves, 6163 North Lawrence Street.

Fine of $250 and costs:
E. Lewis Cannon, Fifty-Second Street, near Market.
Albert O. Wehinger, Mitten Building.
Peter M. Caruso, 1829 Spruce Street.
William Thomas Clark, 1535 Girard Avenue.
Arthur P. Crowe, 5839 Chester Avenue.
Victoria Mae Domke, 6027 North Sixteenth Street.
Harry Findeison, 49 North Fifty-Second Street.
William H. H. Fox, 6628 Greene Street.
Angelo Ingeriselli, 1732 Frankford Avenue.
Yale Lunin, 25 South Sixtieth Street.
Otto Bimler, 2104 North Hancock Street.
Joseph Torrisi, 1410 Moore Street.
John E. Ruane, 10 South Eighteenth Street.
Charles Blomer, 2355 North Carlisle Street.
Arnold R. Clark, 3230 Chestnut Street.
Emile Waltzing, 5526 Locust Street.
Wilhelm Kunze, 2513 North Sixth Street.
Edward Byrne, 1425 West Erie Avenue.
James Dairymple, 4903 York Road.
Charles W. Engle, 6241 North Broad Street.
Elmer Ereig, 5613 Germantown Avenue.

Fine of $200 and costs:
Harry Neff, Ninth and Race streets.

Fine of $150 and costs:
R. S. Halligan, 809 North Forty-First Street.
Mischaline Kaldon, 1921 East Allegheny Avenue.
Emma L. Amonson, Witherspoon Building.
Reba B. Dolbow, 5034 Baltimore Avenue.
Pauline Fenix, 1533 Chestnut Street.
Mary L. Grubner, 2403 North Sixteenth Street.
Emma C. Hoffman, 2205 North Nineteenth Street.
Mary E. Johnson, 235 South Sixtieth Street.

One year's probation:
Frieda Bimler, 2104 North Hancock Street.
Josephine Repici, 1716 Snyder Avenue.
Antoinette Mancini, 206 North Sixty-Third Street.

In McKean County the following were fined $200 and costs and warned not to engage in practice again: J. F. Elwood, L. H. Haler and John Wagner. In Beaver County, John A. Black was sentenced to pay court costs, paroled for one year and advised to leave the state. In Erie County the following were sentenced to pay court costs and to cease practice immediately: J. D. Shipley, Forrest D. Frame and DeLoyd Parker.

Philadelphia

Society News.—Drs. Francis G. Harrison and Alexander Randall addressed the Philadelphia Urological Society, March 23, on "Diathermy in Urological Conditions" and "Relation of Tuberculosis to Prostatic Disease," respectively.——Dr. William Duane, Jr., among others, addressed the Philadelphia Neurological Society, March 27, on "Ocular Manifestations of Tumor of the Occipital Lobe."——Dr. Leon Herman delivered the postgraduate seminar under the auspices of the Philadelphia County Medical Society, March 20, on "Pathogenesis and Clinical Significance of Prostatism"; Dr. Norman L. Knipe gave the lecture, March 27, on "Sex Inheritance and Eugenics."

RHODE ISLAND

Bills Introduced.—S. 175 proposes to permit licensed physicians to prescribe such amount of wine, beer, ale, porter and other malt preparations for medicinal purposes as they deem necessary and advisable. S. 201, to amend the workmen's compensation act, proposes to provide that an employer shall be liable up to $500 for medical services rendered an injured employee when the employee has received hospital treatment for fourteen days or less, and that liability shall not exceed $1,000 when an employee has received hospital treatment for more than thirty days. Charges for hospital services are not to exceed $8 per day. The attending physician must give written notice to the employer within thirty days after the beginning of his services and, within six months after the conclusion of the services, must present his bill.

SOUTH CAROLINA

Bill Introduced.—H. 549 provides liens for hospitals treating free patients, on amounts due such patients on accident and health insurance policies. The lien shall not exceed 50 per cent of such an insurance nor more than $1.50 per patient per day.

Society News.—Dr. Frank M. Lander, Williamston, president-elect of the Anderson County Medical Society, presented to the society, February 11, a gavel made from a chair used when Dr. Benjamin Franklin Brown started housekeeping in 1856, and made in his son's shop. Dr. Brown was born in Anderson in 1833, the first boy to be born in that city. He studied medicine in Charleston, graduating in 1854. He died in 1919.

SOUTH DAKOTA

Society News.—Dr. Harry M. Freeburg, Watertown, addressed a recent meeting of the Watertown District Medical Society on spinal anesthesia; Dr. Clifford J. Barborka, Rochester, Minn., presented a lantern slide lecture on obesity.——Dr. Julius O. Arnson, Bismarck, addressed the Stutsman County Medical Society, February 24, on "Heart Irregularities."

TENNESSEE

Bill Introduced.—H. 700 proposes to regulate the practice of cosmetology, and, among other things, to permit practitioners of cosmetology to remove superfluous hair by means other than electricity.

Society News.—Drs. Harley W. Qualls and Cleveland S. Simkins, Ph.D., addressed the Memphis and Shelby County Medical Society, January 20, on "Acute Miliary Tuberculosis with Nasal Manifestations" and "Recent Advances in the Physiology of Reproduction."——Dr. Leonard W. Edwards was elected president of the Nashville Academy of Medicine recently. Dr. Henry L. Douglass addressed the academy, March 10, on "Tumors of the Kidney in Children."——Dr. George W. Crile, Cleveland, addressed the Chattanooga-Hamilton County Medical Association, March 10, on "The Liver and Its Function."

VERMONT

Bill Introduced.—H. 283 proposes to make the confinement of either spouse in an insane asylum for five years or longer a ground for divorce.

VIRGINIA

Society News.—Dr. William A. White, Washington, D. C., addressed a joint meeting of the Southside Virginia Medical Society and the Department of Clinical Education of the Medical Society of Virginia at Petersburg, March 10, on "Psychologic Medicine."——Drs. Oscar Swineford, Jr., and Calvin T. Burton addressed the University of Virginia Medical Society, January 26, on "Pathological Physiology of Clinical Allergy" and "Avertin Anesthesia," respectively.——Dr. William H. Howard, Hampton, addressed the Elizabeth City County Medical Society, February 2, on pathology, diagnosis and treatment of syphilis.——Drs. Marvin P. Rucker and Greer Baughman, Richmond, addressed the Mid-Tidewater Medical Society at West Point, January 27, on "Treatment of Placenta Praevia" and "Prenatal Care," respectively.——Dr. Walter B. Martin, Norfolk, addressed the Warwick County Medical Society, January 26, on "Value of Iron in Secondary Anemia."——Dr. Frank N. Mallory, Lawrenceville, was elected president of the Post-Graduate Medical Society of Southern Virginia, recently, and Dr. Philip Jacobson, Petersburg, secretary.

WEST VIRGINIA

Society News.—Dr. Henry J. John, Cleveland, addressed the Ohio County Medical Society, January 9, on "Surgery in Diabetes." Dr. Herman O. McPheeters, Minneapolis, addressed the society at Wheeling, February 27, on "Injection Treatment of Varicose Veins," and Dr. John H. J. Upham, Columbus, Ohio, March 27, on "Medical Progress of 1930."——The Central West Virginia Medical Society was addressed, January 29, by

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Drs. John B. Banks, Charleston, on "Closed Method of Drainage in Empyema"; Moritz F. Petersen, Charleston, "Pylorospasm in Children," and Grattan G. Irwin, Charleston, "Renal Tuberculosis."——Drs. Robert S. Peck, Camelton, and Gilbert A. Daniel, Beards Fork, addressed the Fayette County Medical Society, February 10, on "Rheumatic Fever, with Special Consideration of Its Nonarticular Manifestations" and "A Consideration of the Symptomatology, Incidence and Treatment of Diseases Due to Intestinal Parasites in Fayette County."——The Kanawha County Medical Society, Charleston, devoted its meeting, February 3, to a symposium on tuberculosis.——Dr. Ivan Fawcett, Wheeling, addressed a recent meeting of the Marshall County Medical Society in Moundsville on "Indications and Technic for the Removal of Tonsils."——The Raleigh County Medical Society was addressed, January 15, at the Beckley Hospital by Drs. William Lowndes Peple on "Treatment of Carcinoma of the Cervix"; James H. Smith, "Treatment of Hyperthyroidism," and Samuel W. Budd, Richmond, Va., "Etiology of Cancer."

WISCONSIN

Award of Nichols Medal.—John Arthur Wilson, Ph.D., Milwaukee, was awarded the William H. Nichols Medal of the New York section of the American Chemical Society for 1931, March 13, "for outstanding achievement in colloid chemistry, applied particularly to leather and sanitation." In his address of acceptance, Dr. Wilson spoke on "Leather, Sanitation and Colloid Chemistry."

Bills Introduced.—H. 531 proposes to require dentists to register their names with the local registrar of vital statistics in the district in which they practice. Dentists are to be allowed to make medical certificates of death. It is also proposed that wherever the word "physician" is used in the law concerning vital statistics, it shall be construed to include legally qualified dental surgeons. S. 233 proposes that, whenever a county department of health is organized, it shall have jurisdiction throughout the county except in cities employing full time health officers, which, by vote of their governing body, determine to remain outside of such jurisdiction.

Licenses Revoked.—The state board of medical examiners reports that the license to practice medicine of Dr. Friedrich C. Liefert, Milwaukee, was revoked, February 3, by order of Judge George Shaughnessey after the physician had been sentenced in the municipal court to five years' imprisonment on a charge of second degree manslaughter. At a meeting of the board in Madison, January 13, the license of Dr. W. B. Parke, Camp Douglas, to practice medicine in the state was revoked. Dr. Parke was convicted in circuit court in Monroe County, Nov. 22, 1930, on a charge of manslaughter.

Ambulance Service by Practitioners.—A system has been inaugurated at the new Johnston Emergency Hospital, Milwaukee, it is reported, in which the physician on duty answers the emergency call in his own car. In the meantime, an ambulance has been dispatched from the nearest police station. This emergency service in Milwaukee is said to be under the jurisdiction of the police department. The system will be given a trial with probable changes later. Four physicians alternate on duty at the hospital. The new building houses the hospital and on the first floor are the activities of the south side Health Center. The Johnston Emergency Hospital is a city institution.

Course on Insulin on Anniversary of Its Discovery.—To observe the tenth anniversary of the discovery of insulin by Drs. Frederick G. Banting and Charles H. Best, Toronto, a course on insulin and its use, organized by the extension division of the University of Wisconsin at the request of the state medical society, will be given for one day each in Madison, Milwaukee, Oshkosh, Wausau, Eau Claire and La Crosse, in this order, during the week of May 18. Dr. Leland S. McKittrick, Boston, and Dr. Russell M. Wilder, professor and chairman of the department of medicine, University of Chicago, will, with Dr. Elmer L. Sevringhaus and a dietitian of the medical school at Madison, give lectures and demonstrations.

Society News.—Drs. Hans A. Jarre, Detroit, presented a paper before the Milwaukee Academy of Medicine, February 24, on "Roentgen Physiologic Studies of the Urinary Passages."——Dr. Cleveland J. White, Chicago, addressed the Fond du Lac County Medical Society and conducted a clinic on skin diseases, at Fond du Lac, March 11.——Drs. William J. Carson, Milwaukee, and Oswald H. Robertson, Chicago, addressed the Medical Society of Milwaukee County, March 13, on "Intravenous Urography" and "Treatment of Pneumonia."——Dr. Fred J. Hodges, Madison, among others, addressed the Milwaukee Academy of Medicine, March 10, on "Status of Roentgenology in the Teaching of Medicine."——Dr. John Whitridge Williams, Baltimore, addressed the University of Wisconsin Medical Society, March 20, on "The Third Stage of Labor and Thereafter." Dr. Irving S. Cutter, Chicago, delivered the William Snow Miller lecture, March 30, under the auspices of the society and the Phi Beta Pi medical fraternity, on the history of puerperal fever.——Drs. David M. Gallaher and Carl D. Neidhold addressed the Outagamie County Medical Society, Appleton, March 16, on infant feeding.——Dr. William J. Bleckwenn, Madison, among others, addressed the Portage County Medical Society, Stevens Point, on "Encephalography in Head Injuries."——Dr. H. Winnett Orr, Lincoln, Neb., addressed the Fond du Lac County Medical Society, February 25, on osteomyelitis.——Dr. Ernst A. Pohle addressed the Dane County Medical Society, Madison, March 12, on "The Present Status of Roentgen Deep Therapy in Malignant Disease."——Dr. Frank J. Novak, Jr., Chicago, spoke on "Newer Knowledge of Immunology and Its Application in Otolaryngological Practice" before the Milwaukee Oto-Ophthalmic Society, February 17.

GENERAL

Northwest Regional Conference.—Representatives of the medical societies of Iowa, North Dakota, Wisconsin and Minnesota met in St. Paul, February 8. Questions of social medicine, medical economics, legislation, work of auxiliaries and public relations were discussed. Dr. Otho A. Fiedler, president-elect of the Wisconsin State Medical Society, Sheboygan, was elected president of the conference, and Mr. Vernon D. Blank, managing director of the Iowa State Medical Society, Des Moines, secretary.

Society News.—The National Conference on College Hygiene will be held at Syracuse University, Syracuse, N. Y., May 5-9. Its aims are to seek an agreement on minimum standards for colleges and universities concerning health service, health teaching and interrelationship and correlations of student physical welfare activities.——The Third International Congress of Eugenics will be held at the American Museum of Natural History, New York, Aug. 20-23, 1932, under the presidency of Charles B. Davenport, Ph.D., director of the department of genetics of the Carnegie Institution.

Addict Imposes on Physicians.—It is reported that a man calling himself H. C. Hall has recently visited several towns in Colorado and, claiming that he suffered from kidney disease, has called physicians to attend him, asking for narcotics and requesting them to cash checks. In Colorado Springs he induced the physician who attended him, a hospital and a hotel to cash for him what purported to be pay checks drawn by The Texas Company on banks in Topeka, Kan., and St. Joseph, Mo. Police ascertained that he had followed the same procedure in other cities. He exhibited a scar, which he claimed was the result of removal of the left kidney. As a specimen of urine examined by the physician was red but did not contain blood, it was believed that the man had colored it artificially.

Another Cancer Fund.—According to the New York *Times*, a $1,500,000 trust fund to be used for the alleviation of suffering from disease and especially for the control of cancer was created in the will of Egbert C. Fuller, Branford, Conn., who died, March 5. The will provides for the creation of the Anna Fuller Memorial Prize to be given "to such person or persons as shall at any time, within successive periods of five years each, commencing one year after my death, make a real and outstanding contribution to knowledge on the subject of cause, care, prevention or cure of cancer." Such awards shall not in any five year period exceed the sum of $25,000, and shall be given on the recommendation of the President of the American Medical Association and the deans of Johns Hopkins and Harvard University medical schools. The $1,500,000 fund will be known as the Anna Fuller Fund, in memory of the donor's wife, who died from cancer in 1918.

State Councils for Child Health and Protection.—Following the Congressional action which officially designated May Day as National Child Health Day in the United States, the State and Provincial Health Authorities accepted this observance of the day, which is sponsored by the American Child Health Association, as part of their own program and named a Child Health Day Committee. This organization later endorsed a plan of developing May Day committees into "State Councils for Child Health and Protection" to carry on year-round programs. The objectives are to coordinate organized state groups, official and voluntary, to study child needs; to focus attention on these needs; to interpret the purpose and findings of the White House Conference, and to observe May

Day, National Child Health Day, as the focusing point for the year's work. The official membership is to include the governor, state commissioners of health and of education, director of state extension work, and chief of welfare bureau, when one exists, and heads of other state departments dealing with children. It is planned that the voluntary membership shall include representatives of all organized professional and lay groups, representatives of county councils, and individuals invited because of important contributions to child welfare.

American Association for the Study of Goiter.—The annual meeting of the American Association for the Study of Goiter will be held at Kansas City, Mo., April 7-9, under the presidency of Dr. Kerwin W. Kinard, Kansas City, and with headquarters at the Hotel President. The speakers will include Drs. William F. Rienhoff, Jr., Baltimore, on "Lymphatics of Thyroid"; Martin Nordland, Minneapolis, "Increased Susceptibility of Hyperthyroid Patient to Air Embolism"; Emil Goetsch, Brooklyn, "Significance of Structural Changes Occurring in the Superior Thyroid Artery in the Various Types of Goiter"; Fred A. Coller and Roy D. Arn, Ann Arbor, Mich., "Thyroidectomy for Goiter without Hyperthyroidism: A Study of Postoperative Results in Adenomatous Goiter with Normal and Hypofunction"; James Kenneth McGregor, Hamilton, Ontario, "Differential Diagnosis for So-Called Borderline Cases of Hyperthyroidism"; Andre Crotti, Columbus, Ohio, "Malignant Goiter"; Howard M. Clute, Boston, "Malignancy of the Thyroid," and Walter E. Sistrunk, Jr., Dallas, Texas, "Thyroiditis." There will be symposiums on the goiter heart and on preparation and care of operative cases, diagnosis and surgical clinics, a clinical-pathologic conference, and a round table discussion of important problems relating to thyroid surgery. Entertainment will include a boxing program at the Kansas City Athletic Club.

PHILIPPINE ISLANDS

Medical Association Elects Officers.—At the annual meeting of the Philippine Islands Medical Association, Dec. 19, 1930, the following officers were elected: Drs. Herminio Velarde, Malate, Manila, president; Basilio J. Valdes, San Rafael, Manila, and Gabriel Intengan, Luna, Manila, vice presidents, and Antonio S. Fernando, secretary, reelected.

Dr. Albert Gives Library to Bureau of Science.—Dr. Jose Albert, professor and chief of the department of pediatrics, University of the Philippines College of Medicine, Manila, recently donated his private collection of scientific books to the Bureau of Science library. This library is said to contain 125,000 volumes, including 600 current medical periodicals and 16,000 medical books and pamphlets. It is reported to be one of the best in all Asia and Malaysia.

HAWAII

Personal.—Dr. Forrest J. Pinkerton has been appointed secretary-treasurer of the Hawaii Territorial Medical Association and corresponding secretary of the Honolulu County Medical Society to succeed the late Dr. Archibald N. Sinclair.

Hospital News.—The new Shriners' Hospital for Crippled Children, Honolulu, was dedicated, Nov. 25 and 27, 1930. From the opening of the first Shriners' Hospital in Honolulu, Jan. 2, 1923, up to March 31, 1930, there were admitted and discharged 1,347 crippled children, not including several hundred outpatients. Early in 1930, Messrs. Herbert M. and Llewellyn F. Dowsett and their sister, Mrs. Aileen Dowsett White, as a memorial to their deceased parents, Mr. and Mrs. J. M. Dowsett, donated the family home to the Shriners of Honolulu to be used as a hospital for crippled children in the Hawaiian Islands. Dr. Alfred Leslie Craig is chief surgeon at the new hospital.

PORTO RICO

Society News.—Officers of the Medical Association of Porto Rico were recently elected as follows: Drs. Manuel Diaz-Garcia, Santurce, president; Ramón J. Sifre, Vega Alta, vice president; Mario Julia, Santurce, treasurer, and Oscar G. Costa-Mandry, San Juan, secretary.

Health Commissioner Resigns.—Dr. Pedro N. Ortiz, commissioner of health for eight years, has resigned. Dr. Ortiz has been associated with important advances in health work, including the building of numerous institutions and the establishment of the health units on the island, according to the Porto Rico *Journal of Public Health and Tropical Medicine*. Dr. Antonio Fernós-Isern, subcommissioner for eight years, has been given an interim appointment as commissioner by Gov. Theodore Roosevelt.

LATIN AMERICA

Chile Opens First Rural Health Center.—The first consultation clinic in Chile was opened, Oct. 5, 1930, in Santiago by the bureau of public health. The new center will provide polyclinic, maternity, emergency hospital, pharmaceutic and ambulance service to rural districts. Consultation service for men and women before marriage, for women before and after childbirth, for nursing mothers, for the preschool child, and dental service for mothers and preschool children; vaccination and eye, ear, nose and throat examinations will also be provided.

Government Services

Army Personals

Major Thomas E. Harwood, Jr., relieved at Fort Sill, Okla., and assigned at Randolph Field, Texas; Capt. Harvey I. Rice, relieved at Carlisle Barracks, Pa., and assigned at Walter Reed General Hospital, Washington, D. C.; Col. John A. Clark, relieved at Denver and assigned to Fort Lewis, Washington; First Lieut. Victor A. Byrnes to Washington, D. C., to pursue a course of instruction at the Army Medical School; Col. Herbert G. Shaw, relieved at Fort Slocum, New York, and assigned at Fort Sill, Okla.; Major Harvey R. Livesay, assigned at Army Medical Center, Washington, D. C., on completion of his present tour of foreign service; Lieut. Cleveland R. Steward, relieved at Army Medical Center, and will sail about August 28 for duty in Hawaiian Department; Capt. Harvey F. Hendrickson, relieved at Fort Worden, Washington, and will sail from San Francisco about May 28 for duty in the Hawaiian Department; Major Claude V. Gautier, assigned at Fort Benning, Georgia, on completion of present tour of foreign service; Major William J. Carroll, relieved at Walter Reed General Hospital, Washington, D. C., and will sail about May 5 from New York for the Philippine Department; Lieut. Col. Adam E. Schlanser, relieved at Walter Reed General Hospital, and assigned at Letterman General Hospital, San Francisco.

Change of Station in the Navy

Capt. Samuel S. Rodman from the naval air station, Pensacola, Fla., to the Asiatic Station; Lieut. Robert J. Vaughan from the naval station, St. Thomas, V. I., to the receiving station, Hampton Roads, Va.; Lieut. Charles W. Robles from the second brigade, U. S. Marines, Nicaragua, to naval hospital, New York; Lieut. Otto L. Burton from naval station, St. Thomas, V. I., to naval radio station, San Juan, P. R.; Lieut. Comdr. Edwin D. McMorries from the navy yard, Pearl Harbor, T. H., to the naval hospital, San Diego, Calif.; Lieut. Comdr. John E. Porter from the naval hospital, Puget Sound, Wash., to the navy yard, Pearl Harbor, T. H.; Lieut. Comdr. Edwards M. Riley from the U. S. S. *Vega* to the navy yard, Mare Island, Calif.

U. S. Public Health Service

Surg. Howard F. Smith, relieved at Washington, D. C., and assigned to duty at Mexico City, Mexico; Surg. Le Grand B. Byington, relieved at Mexico City, and assigned at the Marine Hospital, San Francisco; P. A. Surg. Anthony P. Rubino, relieved at Manila, P. I., and assigned at Hongkong, China; Dr. Mason V. Hargett, appointed and commissioned as assistant surgeon in the regular corps of the U. S. Public Health Service, effective from date of oath; Carl Voegtlin, Ph.D., appointed and commissioned a pharmacologist director, in the grade of medical director in the regular corps of the public health service from date of oath; A. A. Surg. Paul D. Holloway, relieved at Hot Springs, Ark., and assigned at Key West, Fla.

The Government Needs Physicians

The U. S. Civil Service Commission states that the hospitals of the veterans' bureau, the public health service, the Indian service and other branches are in need of medical officers of various grades and kinds, and of graduate nurses. Veterans' bureau hospitals also have vacancies in positions of psychiatric social worker, junior social worker, and technicians in roentgenology and bacteriology. Full information may be obtained from the secretary of the U. S. Civil Service Board at the postoffice or customhouse in any city, or from the U. S. Civil Service Commission, Washington, D. C.

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Foreign Letters

LONDON

(From Our Regular Correspondent)

March 7, 1931.

"To Pasteurize or Not to Pasteurize?"

Something of a counterblast to Lord Moynihan's advocacy in the house of lords of the pasteurization of milk is a letter from Dr. R. Stenhouse Williams, a bacteriologist and milk expert, of the National Institute for Research in Dairying. He points out that when Lord Moynihan said that 40 per cent of our cows suffer from tuberculosis, he should have said that about 40 per cent react to the tuberculin test and about 1 per cent give tuberculous milk. He also objects to Lord Moynihan's statement that 31.5 per cent of tuberculosis in children up to the age of 15 is of bovine origin. This percentage holds only for nonpulmonary tuberculosis, and it might have been added that from 70 to 80 per cent is due to the human type. When Lord Moynihan spoke of 100 people dying every day from tuberculosis he should have made it clear that he meant tuberculosis of all kinds. In 1927, 38,173 persons died from tuberculosis, but among them only 2,000 from the bovine type. Moreover, this number represents a fall of 50 per cent since 1918 and is even greater than that which has occurred from the respiratory type, which is almost entirely due to human infection. Dr. Williams claims great progress during the last decade in the milk industry. He agrees with Dr. Brownlee, who pointed out in 1917 that the simplest and best way to rear a baby is to feed it on raw milk free from disease.

On the other hand, Dr. Henry Kenwood, emeritus professor of hygiene and public health in the University of London, upholds pasteurization and claims that there is nothing to show that the boiling of milk destroys any quality of value. In this and other countries, tens of thousands of infants are being reared on heated milk with complete success. He concedes that a little fruit-juice should be given to correct the reduction in vitamin C, but that is an easy matter. Evidently it is the reduction in the available calcium and phosphorus content when milk is heated that Dr. Williams has in mind. But where is the evidence that a child fed on heated milk is more likely to suffer from a deficiency of calcium and phosphorus than one fed on raw milk? Does not a cow's milk when boiled contain more of these elements than human milk? Pasteurization is no alternative to cleanliness, as some have suggested, for dirt robs pasteurization of some of its best results. What is of moment to the country is the extremely small proportion of such milk sold, generally at an enhanced cost. As a student of public health, Professor Kenwood has long been convinced that nothing but advantage would result from the pasteurization of the entire public milk supply, and he rejoices that some 90 per cent of the London supply is so treated.

Dr. P. C. Varrier-Jones, medical director of the Papworth Village settlement, points out in the *Times* that, in 1929, 7.5 per cent of the samples of milk examined by the health department of the London county council were found to contain tubercle bacilli. The estimated daily supply of milk to London is 350,000 gallons and calculation therefore shows that millions of gallons of infected milk is distributed in the year. Hence the Treloar Home at Alton in Sussex is full of tuberculous cripples. Dr. Varrier-Jones therefore recommends that none but boiled or pasteurized milk be drunk.

Work of the Medical Research Council

The annual report of the Medical Research Council for 1929-1930 shows that at University College Hospital, an important change has been made in the relation of Sir Thomas Lewis to the hospital. For fifteen years he has been general physician to the hospital while giving his whole time service to the Medical Research Council in directing researches in experimental medicine. The hospital itself established last June a department of clinical research to be under the control of a physician whose special training shall have fitted him for such an appointment. Sir Thomas Lewis was appointed as the first physician in charge of this new department on his resignation of his appointment as a member of the ordinary staff. He will continue to work in the whole time service of the council, in whose view the new policy of the hospital will give greater stability to the organization of clinical research. Further, the change shows that the hospital, as the result of these years of experience, recognizes the value of research organization of this kind, maintained side by side with the teaching systems but independent of them. A position has been created here which younger research workers in clinical medicine may make it their ambition to fill. The council holds that the creation of more posts of this kind is greatly needed for the progress of clinical research. Similar movements are taking place or are contemplated at other centers, such as Leeds, Birmingham and Aberdeen.

NUTRITION STUDIES; VITAMIN A

Much work has been done on vitamin A, which probably is a main constituent of the original "growth factor," first demonstrated by Sir Frederick Hopkins in 1912. An inquiry is in progress as to its value in the treatment of middle ear disease after scarlet fever and in the prevention of dangerous sequels after the common fevers. Carotene has been shown to replace effectively vitamin A in the diet, and it has been concluded that it is stored unchanged in the liver. Working for the council, Dr. Moore has shown that the effects following ingestion are not due to carotene being stored in the body or to any identity with vitamin A, but that carotene leads to a proportionate appearance of vitamin A in the liver fat. His work suggests that carotene is a precursor of vitamin A. This explains a fact previously demonstrated by Dr. Moore, that the carrot, which contains no vitamin A as such, can give rise in the animal body to the production of as much vitamin A as is contained in an equivalent weight of cod liver oil, calculated as dry substance.

Progress has also been made in the standardization of vitamin preparations. To promote the studies necessary for establishing other standards, subcommittees have been formed to deal with vitamin A, B and C.

INSULIN NOT USED SUFFICIENTLY

The council declares that insulin has not yet been used as it ought to be. The place it has taken in the treatment of diabetes, encouraged by the present abundant supply, should have led to such an increase in its consumption that would measure the persons needing it. The consumption within Great Britain early in 1930 was 50 per cent higher than in 1928 and nearly four times higher than in 1925. The council therefore concludes that in 1925 many patients were not getting the benefit of insulin, although its value had been widely known for two or three years. Even the present demand corresponds to much less than the estimated number of patients with diabetes, after allowing for the elderly ones who commonly have a mild form of the disease that can be controlled by diet. Further, there is the steadiness in the death rate from diabetes, but the council rebuts the argument of the antivivisectionists that this shows the uselessness of insulin. A diabetic patient, though enjoying good health under insulin, is not cured. When he comes to die, the fact that he suffered from diabetes will appear on his death certificate. The test is therefore not the number of deaths from diabetes registered but the length of life of its victims. Since the introduction of insulin in 1923, the mortality of males under 55 from diabetes has been reduced by 37 per cent and of females by 21 per cent. At 25-45 the male rate has fallen by 45 per

cent. But this effect, which is undoubtedly due to insulin, is masked in the total death rate by increase in mortality over the age of 55. This increase evidently has a dietetic origin, since the mortality at these higher ages was greatly reduced during the period of food restriction of the war and has since been rising.

The Domestic Smoke Evil

The sixteenth report of the department of scientific and industrial research on the investigation of atmospheric pollution shows that domestic smoke is now the principal cause of the smoke nuisance in many of our large cities. Estimates for London and Glasgow show that in the former the proportion is 2½ domestic to 1 industrial smoke and in the latter 3½ to 1. The burning of every ton of raw coal in a domestic open grate is estimated to cause $2.50 worth of damage in many areas. The report makes no attempt to estimate the damage to health, such as the part played in the absorption of the ultraviolet rays by the dust and smoke laden atmosphere, which plays an important part in the production of rickets, tuberculosis and anemia, to mention only some of the results. That smoke from densely populated districts affects the clearness of the atmosphere throughout wide areas has been shown by the fact that the visibility at Valentia, a beauty spot in the southwestern part of Ireland, is affected by smoke from industrial areas 350 miles away. Sir Frank Baines recently estimated that in the last twenty-five years the sulphur in coal smoke has damaged buildings to the extent of $300,000,000. Records show that in November and December no ultraviolet radiation is received in the middle of Sheffield. Records of twenty-five stations show that the deposit from smoke amounts to 300 tons or more per square mile, while at forty other stations it exceeds 100 tons. Investigations by the department have resulted in the invention of an apparatus of simple design for testing the amount of sulphur pollution in the atmosphere. It has the advantage that it can be worked by a person with little technical skill. Specifications of the invention will be issued to municipalities which are members of the standing conference of cooperative bodies, which keep records of atmospheric pollution in their respective localities. The experimental work leading up to the invention was carried out by Sir Robert Robertson, F.R.S., the government chemist. Before the department took up this branch of research more than a year ago, the only records that were being kept were either of deposits in gages or of suspended impurities detected by filtering apparatus. The only indication of pollution by sulphur fumes was in the sulphates collected in the deposit gages, which gave only a comparative measure. What the department has been aiming at is a simple apparatus which will measure strictly the amount of sulphur in the atmosphere in the form of sulphur dioxide.

The Value of Ultraviolet Therapy

Sir Leonard Hill, the physiologist, in conjunction with Dr. A. R. Laurie, medical officer of the Derby education committee, has completed an investigation into the value of ultraviolet ray therapy. He chose 400 children at random from various districts of that town. These were divided into four groups and examined by six physicians completely ignorant regarding the groups in which the children had been placed. The first group was given ultraviolet treatment twice weekly for sixteen weeks. The second group was given each day a pellet containing vitamin D. The third group was given treatment with a lamp which screened off the ultraviolet rays and pellets which did not contain any vitamin D. This was to prevent the children knowing what treatment they were given. The fourth group did not receive any treatment. At the end of the treatment the children were examined by the same six physicians in respect of height, weight, sleeping, appetite and other points. In every case it was found that the children in the first group, who had been given ultraviolet treatment, showed marked improvement over the other groups. All the cases that showed spectacular improvement were in this group, which was the only one in which the parents expressed gratitude for the treatment.

PARIS

(From Our Regular Correspondent)

Feb. 18, 1931.

The Transmission of Poliomyelitis

Levaditi, Kling and Lepine, who recently presented a report on the epidemic of poliomyelitis in Alsace, have now transmitted to the Academy of Medicine a contribution on the mode of transmission of the disease, which they suspected might be carried by water. They have discovered through research that domestic animals which have consumed food contaminated by the virus of poliomyelitis do not contract the disease but that the virus, after passing through the digestive tract, is found in their excrement, and thence passes into the water supplies of rural regions. Thus the transmission is brought about. During an epidemic, the virus can be eradicated by disinfecting the drinking water and that used for washing. The virus is likewise completely destroyed by small quantities of chlorine (0.0004 Gm. per liter).

Intravenous Injections of Antidiphtheritic Serum

The Société de pédiâtrie devoted recently a session to the study of intravenous injections of antidiphtheritic serum, a subject that is much debated. The method requires constant supervision of the patient and exposes him to rather serious dangers, so that it is doubtless better not to employ it in general practice but to reserve it for well organized hospitals. That was the opinion of Dr. Debré and Dr. Lereboullet, who regard the method as efficacious but involving serious risks. Debré mentioned that the method has been in use for some time in Copenhagen, but that, in comparison with the subcutaneous and intramuscular injections employed in France and in Germany, it does not appear to have given results sufficiently superior to justify the additional risks involved. Mr. Janet employed intravenous injections at the same time as intramuscular injections in eleven cases of malignant diphtheria. The results were excellent, and only two deaths occurred. There are no serum accidents as with the subcutaneous route; but the postdiphtheritic paralysis could not always be prevented.

Effects of Neon Gas Light

Incandescent neon gas burners are being used more and more as a method of illumination. Zimmern and Hickel have reported the results of their research to discover whether such illumination presents any disadvantages for the human organism, as may be the case with respect to ultraviolet rays, and also whether it possesses any therapeutic properties. They have discovered that this light is a source of actinic rays but is less powerful than those employed today in phototherapy, and that it possesses far different properties. They employed intense sources of light, consisting of a series of large vertical tubes (diameter, 5 cm., length, 1.5 meters), disposed in a circle. The light consists of radiations belonging to the red and to the orange regions in the visible spectrum but has also rays in the zone 3,750 to 3,350. The relatively moderate emission of ultraviolet rays explains why no erythema nor pigmentation is observed. Neon gas light, in general irradiation, provokes anorexia, insomnia and nervousness, which effects are not produced by ultraviolet rays. Therefore, the authors reduced the duration of the applications; they recommend triweekly sittings of ten minutes each, smoked lenses being used to protect the eyes. The therapeutic results were especially interesting in children. Many children who had been previously sad and apathetic became lively, gay and playful. One observed a stimulative action, affecting the hematopoietic system and

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resulting in an increase of weight. Neon gas light possesses, therefore, an action distinctly different from the action of light from actinic sources.

Humidity of the Atmosphere of Heated Rooms

Dr. Singer has contributed an article on the disadvantages of the dry atmosphere of apartments, which result from hot water or steam heating systems. He demonstrated that the surface of the body and the mucosae of the respiratory apparatus loses its humidity as the temperature of the air rises and the air becomes dry. The result is that the respiratory passages become more susceptible to congestion and to infection. The dust particles of the air are carried in the direction of the hot air currents, as may be seen from the black spots on the walls near the radiators. Dr. Singer concludes that the ideal humidity from the standpoint of health is 15.246 Gm. of vapor per cubic meter of air when heated to a temperature of 18 C.; 16.172 Gm. of vapor for a temperature of 19 C., and 17.148 Gm. of vapor for a temperature of 20 C., and so on in increasing proportion. The author invented an apparatus that regulates automatically the supply of vapor as the temperature rises. This simple apparatus is applied to the radiator, from which it derives its supply of water or vapor. It operates on the same principle as the flush tank of a water-closet.

Is Anaphylaxis Hereditary?

Professor Nattan-Larrier has been carrying out a series of experiments with guinea-pigs to test the view of Bret Rather in regard to the relation of eczema of nurslings to hereditary alimentary anaphylaxis, the alimentary proteins ingested by the mother traversing the placenta and sensitizing the fetus. Nattan-Larrier sensitized female guinea-pigs by subcutaneous injection of horse serum and found that their offspring were born in a state of anaphylaxis for horse serum, even four or five successive litters being thus affected without renewed sensitization of the mother, and even though the mother had been sensitized previous to her pregnancy. But this anaphylactic state disappears at the end of a few weeks. The elements of horse serum traverse, however, the placenta with difficulty and only in small quantities. The same is true of diphtheritic or tetanic anatoxine. Such hereditary anaphylaxis must certainly be observable in the child as in the animal. But here also the anaphylaxis is of short duration. The facts are interesting, for it is certain that a child whose mother has received during pregnancy an injection of serum is liable to present anaphylactic disorders if the same serum is injected during the first weeks of the child's life. But Nattan-Larrier does not think that the same effects would be produced by ingested proteins, which in their original form traverse the placenta with difficulty. It appears to him unlikely that the eczema of nurslings has such an origin.

Electrical Shock as Suffered by Telephonists

Several accidents have happened to employees in a telephone exchange at Lyons. Two employees were paralyzed for several months. Five others, more fortunate, were able to return to work after a few days. The two severe accidents occurred when a thunder storm broke over the region, and it is thought that the lightning followed the course of an aerial wire. All lamps on the switchboard flashed violently, and two employees who, at the moment, were plugging in to establish a connection, heard a terrible sound in their head receiver and felt a shock in the arm that held the plug. Cluzet, professor of physics at the Faculté de médecine de Lyon, was secured to study the causes of the accident and to evaluate the damage. His report contains a statement of the precautions that must be taken in installing telephones in order to prevent accidents to patrons or to employees in the exchanges. The most essential precaution is to employ subterranean telephone lines. Aerial lines should be furnished with lightning arresters and should be further protected where they cross high tension lines for the transmission of power for factories or for transportation purposes. Circuit breakers and fusible lead wires should be established in all the apparatus of the exchanges. Six devices are pointed out by Professor Cluzet to combat the dangers of electrical and acoustic shocks. Lightning arresters formed by plates with opposing points are placed along the telephone line. In the apparatus of patrons, there are sheets of mica, together with fusible wires, which serve as lightning dischargers and limit the current to two amperes. There are also thermic coils, which likewise break the circuit if the current exceeds two amperes; and lightning protectors consisting of lamps arranged at the point where the air lines go under ground. All these devices will aid in lessening the gravity of shocks. They will not prevent shocks absolutely; for the technical problem of absolute safety has not yet been solved. In Lyons it was discovered, as the immediate cause of the accidents, that the employee had placed her feet on a copper rod and that she held the switchboard plug not at the point where it was insulated by gutta percha but by the metal part, alleging that she found it more convenient. Acoustic shocks with total concussion of the internal ear were produced, such as were observed during the war in the immediate vicinity of bursting shells. Only temporary nervous disorders result therefrom. Nearly fatal electrical shock, with persistent paralysis, is rare by reason of the precautions taken.

Liability for Neglecting to Use Antitetanic Serum

The tribunal de Douai rendered recently a decision that is possibly the first of the kind. A young man engaged in metallurgic work met with a grave accident in the factory in which he was employed, whereby a deep wound was produced. He succumbed a few days later to tetanus. His family brought suit against the physician for damages, basing the claim on the fact that the latter, in spite of the gravity of the wound, did not employ a preventive injection of antitetanic serum. Professor Balthazard, professor of legal medicine and dean of the Faculté de médecine de Paris, and Dr. Paul, medicolegalist, were summoned as expert witnesses. From their conclusions it appeared that, when a physician has to deal with an extensive wound that is deep and contaminated by foreign bodies, preventive injection of antitetanic serum is indicated unless it is possible to sterilize the wound but that the tort of the physician in the present case was extenuated by the fact that cases of tetanus are rarely observed in factory workers in the northern regions. This consideration would not, however, invalidate the charge of negligence. On the basis of this report, the tribunal, estimating that half of the responsibility rested on the practitioner, fixed the total damage at $6,000, and the amount that the practitioner was to pay at $3,000.

A Million Children Vaccinated With B C G Without Accident

In view of recent criticism in regard to the possibility of return of virulence in the B C G vaccine, Professor Vaquez requested that Mr. Calmette should give a formal statement on this point. Calmette, the assistant director of the Pasteur Institute, accepted the invitation. He opened before his colleagues of the academy an imposing file of documents, which helped him to score a success that was exceptional before this grave assembly and that served to satisfy the doubts of Mr. Vaquez. After recalling favorable results secured throughout the world, Calmette declared that no seriously conducted observations had produced evidence to the effect that the B C G vaccine might become virulent. Such an hypothesis had been, to be sure, formulated in the United States by Petroff and Watson. On cultivation of the bacilli of the vaccine, Petroff alleged that he was able to separate from the harmless strains a type S that was virulent for the guinea-pig. But a careful scrutiny brought out the fact that this virulent culture had been contaminated by the human bacillus. Calmette added that, of the

thousands of guinea-pigs that had been inoculated almost everywhere with doses of varying potency and that had served for passages of the vaccine, not one, as far as his knowledge went, had become tuberculous. In a recent letter, Dr. Bruno Lange, director of the tuberculosis service in the Robert Koch Institute in Berlin, informed Mr. Calmette that, from 1927 to 1930, he had never observed a return of virulence in the B C G vaccine, not even when it was cultivated on egg mediums, which is advised against in the technic. The American experiments are being repeated in the laboratory of Calmette. At the same time, a search will be made for some artificial means of reawakening the virulence of the B C G vaccine. Such a result has been secured with the vaccines of Pasteur and with the vaccine of Jenner. That proves, however, nothing with regard to the harmlessness and the stability of these vaccines. The best proof that the B C G vaccine is harmless lies in the fact that, during the past six years, a million children have been vaccinated without accident. In closing, Calmette suggested the appointment of a committee of inquiry, which would be instructed to secure information on the subject from physicians, obstetricians and laboratories. The academy adopted the suggestion and appointed Messieurs Chauffard, Bar, Marfan, Couvelaire, Bernard, Renault, Sergent, Nobécourt, Lesné, Lesage, Barrier and Vallée.

The Traffic in Narcotics

The advisory committee on opium, which has been in session for a number of weeks at Geneva, has finished its deliberations. The report to the council of the League of Nations praises the efforts of the French government against the illicit traffic in narcotics and refers to the fact that France has withdrawn from three establishments the license to manufacture narcotics. Likewise, all business houses that have been found to be implicated in important cases of illicit traffic have had their license to trade in narcotics canceled. Furthermore, inquiries have been instituted to explain certain suspicious operations that have attracted the attention of competent services. The committee, the report states, congratulated the French delegate on the results of the strict system of control that was instituted in France soon after the Geneva convention went into effect.

An Institute of Physicochemical Biology

The institute of physicochemical biology was inaugurated recently with fitting ceremonies. The institute is a three-story building adjacent to the Radium Institute. Its foundation is due to the generosity of Mr. Edmond de Rothschild, who contributed 50,000,000 francs ($2,000,000) to the project. The erection of the building, together with its equipment, has cost 15,000,000 francs ($600,000). The institute has large laboratories, well lighted and provided with the most modern equipment. Under the directorship of Professors Jean Perrin, Georges Urbain, Pierre Girard and André Mayer, it will afford the best opportunities for research to physiologists, chemists and physicists engaged in the study of phenomena pertaining to life from the point of view of their particular science. Edmond de Rothschild, who was a friend of Claude Bernard, hopes in this manner to aid in the realization of the program of study that this eminent physiologist marked out for himself and his successors; namely, to discover the relationships between vital phenomena and physicochemical forces.

In Memory of Dr. Louis Fournier

A medallion portrait and a tablet of steel have been affixed in the pavilion of the Hôpital Cochin, where Fournier devoted twenty years to research on syphilology. The tablet recalls his research on the use of bismuth in the treatment of syphilis and on vaccination by the buccal route. At the ceremonies held in connection with the event, Professor Brindeau, chairman of the committee that sponsored the erection of the tablet, traced the career of Dr. Fournier before a group of former pupils and friends.

AUSTRALIA

(From Our Regular Correspondent)

Feb. 3, 1931.

The Value of Ramisection in Spastic Paralysis

It is realized in Australia that the time has arrived for a careful evaluation to be made of the position that the operation of sympathetic ramisection occupies in the treatment of spastic paralysis. When Dr. Norman Royle in 1924 reported the results of his first ramisection on a patient suffering from spastic paralysis the result of a gunshot injury, it was felt that at last something might be done to help those afflicted by this distressing disability. Supported as he was by the late John Hunter, the work attracted such attention that they were invited to give the John B. Murphy oration in America in 1924.

During the past six years the operation has been performed in large series of cases both by Dr. Royle himself and by other eminent surgeons throughout the world. It was to be expected that successes and failures would occur until experience showed the indications for the selection of cases, and it was only natural that difficulties and disappointments would be encountered.

Dr. R. B. Wade, writing in the *Journal of the College of Surgeons of Australasia* of March, 1930, gave the results of ramisection performed by him on a series of thirty-five patients and he expressed as his conviction that the operation plus tenotomy and reeducation should be the operation of choice in cases of spastic paralysis.

In the same journal in July, 1930, Dr. H. R. G. Poate reported observations on twenty patients who were submitted to twenty-nine operations. He considered that the results obtained justify a recommendation to others similarly affected to submit themselves for examination and operation if advised. "Some pleasing surprises have been met with and in any case no harm can result to the individual. The definite presence of excessive tone is usually the best indication of a satisfactory result by operation."

Dr. H. Le Roy von Lackum in THE JOURNAL, Jan. 12, 1929, reported the results of forty cases of ramisection for spastic paralysis. He concluded that sympathetic ramisection offers the most effective means of relief in many cases of spastic paralysis in children. "Optimal and good results can be obtained only in patients with good mentality. Results cannot be expected in patients with cortical block to activity or in patients with deformity until this is corrected. Treatment for contractures can be avoided if the patients are treated early. The operation is still judged on an empiric basis, since basic knowledge of muscle tone and the rôle played by the sympathetic system is lacking."

This brief survey of the opinions of these three surgeons suffices to show that the results claimed for the operation by persons other than the originator of the procedure are, at least, encouraging.

In the *Lancet*, July 19, 1930, a report was published by a group of eminent surgeons dealing with the after-history of a series of six children suffering from spasticity who were personally selected and operated on by Dr. Royle when he was in England in 1927. The report comes to the following conclusions: 1. The operation of cervical or lumbar ramisection as performed by Mr. Royle is without effect on the rigidity from extrapyramidal disease. 2. The rigidity of pyramidal disease as seen in conditions of hemiplegia or quadriplegia in children may be temporarily diminished after the operation. This temporary diminution of tone has been observed in both upper and lower limbs with some improvement of voluntary power. The diminution of tone and improvement of function are, however, short lived, and within a few weeks or months, notwithstanding continuous measures of reeducation under experienced medical supervision, the condition of the patient remains as before the operation. In the opinion of several of the surgeons who examined these cases both before

and shortly after operation, the diminution of tone was no more than may be seen after any major surgical procedure with postoperative shock. 3. The operation therefore appears to have no place of value in the treatment of spastic weakness. 4. The observations recorded show that in young human beings the sympathetic fibers play no rôle of any importance in the maintenance of muscular rigidity, whether this is of the so-called parkinsonian variety or of the type seen in lesions of the pyramidal tracts.

The feeling in surgical circles in Australia is that every assistance was given to Dr. Royle in his selection and treatment of these cases. The after-treatment was carefully supervised and was conducted along the lines advised by Dr. Royle. The main ground on which exception is taken to the report of the English surgeons is that general conclusions of such a sweeping nature were made on too small a series. It is felt that no further assessment of the value of the operation will be carried out in England and it is proposed that a committee under the egis of the College of Surgeons of Australasia should inquire into the condition of patients both before and after operation over a period of three years. Australian surgeons consider that, although few, too many good results have been obtained from the operation to warrant its being relegated to a position of merely historical interest.

The Number of Physicians in Australia

In *Hygeia* for July, 1930, appeared a chart showing the relative supply of physicians in the various countries of the world. It was noted that Australian figures were not given and it was deduced that such were not available at the time the chart was prepared. In an endeavor to supply this deficiency, inquiry has shown that there are 4,270 members of the British Medical Association in Australia, made up as follows: New South Wales, 1,715; Victoria, 1,349; Queensland, 477; South Australia, 399; West Australia, 243; Tasmania, 87. The number of nonmembers in Australia is estimated at 850, which makes the Australian total 5,120. In proportion to the population of Australia, this gives 87 physicians per hundred thousand of the population. Reference to the relative supply chart previously mentioned places Australia between Iceland (85) and Great Britain (111.4). The only other countries that have a greater supply are Austria (113.9) and the United States (126.6).

Two Deaths After Intravenous Nonspecific Protein Therapy

At the Brisbane General Hospital within five days of each other, two patients who were being treated for arthritis with intravenous vaccine died a few hours after the injection.

The first fatality occurred, Dec. 29, 1930, the man, aged 32, dying suddenly six hours after an intravenous injection of a *Bacillus coli* vaccine containing 250 million organisms. He had previously received three intravenous injections of the same vaccine: 50 million December 10, a similar dose on the 19th, and 100 million on the 24th. No abnormal reactions had occurred after the previous injections. He was a moderate drinker and had had gonorrhea seven years previously. For six months he had been suffering from headaches and from pains in the right hip. Examination showed that his tonsils were infected but otherwise examination apart from the joint lesions was negative. His tonsils were removed, December 15. An hour after the injection, he had a rigor and a temperature of 103 F. He subsequently felt better, but five and one-half hours after the injection he got out of bed and while walking across the ward had an epileptiform convulsion, collapsed, and died suddenly twenty minutes later. The only abnormality that could be discovered by postmortem examination was a congestion of the brain.

The second patient, a man, aged 34, died, January 4, four hours after an intravenous injection of *B. coli* vaccine containing 250 million organisms. This man had previously had three injections: 50 million December 17, 100 million on the 22d, and 250 million on the 28th. He had been suffering from repeated attacks of pains in several of the joints. Physical examination on admission had shown the only general abnormalities to be an enlarged heart and badly infected teeth. The teeth were extracted under an anesthetic soon after his admission to the hospital. The mode of death was in the nature of a gradual collapse. Postmortem examination revealed nothing noteworthy other than cardiac hypertrophy.

The vaccine used was prepared by the Commonwealth Serum Laboratories, and in both cases was administered from a freshly opened ampule. There was nothing to suggest contamination in the vaccine, as similar ampules of the same batch of manufacture had been used prior to the dates of the fatalities. Local medical opinion is at a loss to account satisfactorily for the deaths, but the deduction made from the fatalities is the advisability of a much more gradual increase of the strength of the injections.

BELGIUM

(From Our Regular Correspondent)

Feb. 4, 1931.

The Convention of the Latin Medical Press

The second convention of the Presse médicale latine was held at Brussels under the chairmanship of Professor Forgue of Montpellier, who delivered, at the opening session, an address on "The Contemporaneous Medical Journal; the Medical Journals of Our Day." He gave an account of the history of the medical journal, the first one of which, founded in 1679, was a pamphlet of twelve pages of duodecimo size. It appeared twice a month. The first cover page bore the subtitle: "The New Discoveries in All Branches of Medicine." It was published at Paris by Laurent Saint-Jean. The founder was one of the most original medical personalities of the seventeenth century. "He was a surgeon," Professor Forgue stated, "and it is with some feelings of pride that we salute the first medical journalist as one of our number. It was the famous Nicolas de Blégny, a man of unequal destiny, elevated from the rank of an obscure companion of Saint-Côme to the lofty position of surgeon to the king; then, with a sudden reverse of fortune, confined, by virtue of a royal order, for eight years at For-Lévêque and at Poitiers."

Forgue afterward set forth the true rôle and the great merit of the modern medical press as a school of graduate instruction and mental and professional training. This important rôle is directed by certain rules of action and conduct; for with us thought is translated into action, and this action should always be considerate of human life.

Among the papers that were presented were the following:

LITERARY PROPERTY AND THE RIGHTS OF PUBLISHERS

Mr. V. Gardette of Paris stated that the publication of an article can be carried out only with the consent of the author. The first publication does not confer on the proprietor of the journal property rights in the published article. The notice published by some periodicals: "The reproduction of articles is prohibited without previous authorization," is devoid of legal value. A communication to a society or to a congress does not become the property of the society or congress.

PUBLICATION OF A DICTIONARY OF MEDICAL TERMS

Mr. P. Rondopoulos of Athens has undertaken the publication of a dictionary of medical terms. The unification of medical terminology has become a scientific need. He will continue his work with the aid of the committee appointed by the federation.

THE LIMITATIONS OF SCIENTIFIC CRITICISM

Mr. A. David of Lille raised the question as to whether a physician has the right to discuss before a learned society and

in a medical journal a therapeutic method proposed by a colleague. Has he the full right to express, according to his conscience, his opinion of the method? The assembly approved unanimously the resolution proposed.

Tuberculosis in the Schools

At the ninth session of the Association internationale pour la protection de l'enfance, the first section described tuberculosis among school children from a threefold point of view: scholastic, social and international, and the following conclusions were unanimously adopted:

From the point of view of the work of the school, the assembly admitted that an endeavor should be made to detect early all tuberculous localizations, in the pupils and particularly in the teachers and the auxiliary personnel, by instituting a general medical inspection of the schools, which should be entrusted to physicians, officials with special training, who, in addition to the usual methods of investigation, have recourse to systematic and repeated skin tests and to radiography from the front and from the side. The medical inspection should be organized in a regular manner and the methods of diagnosis should be as complete as possible. It should be closely connected with the antituberculosis dispensaries, and the school nurse should serve as the intermediate agency between the various persons and bodies concerned. By pursuing her inquiries among the families of the pupils, she should endeavor to discover cases of tuberculosis among adults. The dispensary should have a free dental clinic.

From the social point of view, prophylaxis of tuberculosis in school children should be organized by a constant and persistent improvement of the environment, all possible measures being brought into service: revision of the school curriculum to increase the time spent on games, exercises and physical education; the vacation colonies, not forgetting the open-air schools nor the school lunches.

Special school architects should be consulted in the elaboration of plans for schools. Schools should be constructed on strictly hygienic plans, with proper emphasis laid on washrooms, toilets, cloakrooms, baths and playgrounds. Calmette's efforts in the field of vaccination against tuberculosis should be studied attentively, and if, as now seems likely, his vaccination is effective, the immunity acquired in infancy should be strengthened by revaccinations. Even the possibility of extending the vaccination to all pupils with negative skin reactions should be considered.

The best plans for the isolation of adult germ carriers and eliminators of bacilli should be studied—isolation at home if that is feasible, otherwise isolation in special establishments created for that purpose. These should be large enough to accommodate all the adults of that description. They should be made sufficiently attractive to induce the patients to enter them.

In like manner, children should be taken from an infectious environment and placed in healthful surroundings, thus carrying out the idea of placement in families, as advocated by Grancher.

The measures pertaining to tuberculosis in pupils should not be separated from the whole program of the antituberculosis crusade, as the general program requires an integral organization, so that the administration, even though it entails heavy expenditures, may be established on a definitive economic basis. The establishment of this program should be determined on the basis of the economic returns; in other words, the expenditures should be proportioned in accordance with the results secured. With these ideas in view, the section warned against the adoption of routine measures in place of statistics permitting more uniformity in the researches and the establishment of accurate figures. Compulsory notification of tuberculosis extended to all countries would facilitate the execution of the foregoing plans.

Antituberculosis publicity should be intensified in all countries, so as to prepare the people to accept readily the legislative measures prescribed and to aid in their application. Likewise, international legislation elaborated by the health section of the League of Nations and the international Bureau of Labor has been suggested. The accepted regulations would deal with the various modes of ferreting out cases and with tuberculosis notification; the preventive and therapeutic measures that have given the best results, recommendations as to which would be given to the different countries. In like manner, the section approved the resolution adopted by the international congress held in Paris in 1929 favoring the creation of an international commission appointed by the society promoting the open-air movement.

BERLIN

(From Our Regular Correspondent)

Feb. 23, 1931.

Results of the Germano-Russian Syphilis Expedition

Among all competent investigators in the field of syphilis, there is common agreement that the remarkable decline of this terrible scourge in all civilized countries is due chiefly to arsphenamine, which, if properly administered, renders the patient at once incapable of infecting others and thus reduces most decidedly the number of foci of the disease. This obvious benefit derived from arsphenamine, which can scarcely be overestimated, was, however, questioned by a small group of physicians, who raised the common objection that the therapeutic effect of arsphenamine is only apparent and is, furthermore, bought at too dear a price, because sooner or later paralysis or tabes will develop. In support of this view, it was maintained that among primitive peoples, who leave syphilis untreated, these two sequels of syphilis never occur.

This statement was of course water on the wheel for the charlatans and was utilized to the fullest extent to lower confidence in the art of medicine and thus awaken among the masses a sense of anxiety, which would inure to the advantage of the so-called lay healers. In order to solve the question of an alleged connection between syphilis therapy and the diseases of the brain and the spinal cord, a Germano-Russian syphilis expedition was fitted out, under the auspices of the Notgemeinschaft der deutschen Wissenschaft, and entrusted with the task of making appropriate researches among the population of the Buryat-Mongol Republic, near Lake Baikal, Siberia, in which republic syphilis is widely prevalent.

The results of the expedition have now been announced by Professor Jessner of the University of Breslau. He left no shadow of a doubt that there in no foundation for the statement that the administration of arsphenamine is associated with grave dangers. The extensive researches of the German and the Russian investigators led to the unanimous conclusion that among the population of the Buryat-Mongol Republic syphilis, because of lack of appropriate treatment, appears in its most terrible manifestations, and that in this region where arsphenamine is entirely unknown dementia paralytica and tabes dorsalis are just as frequent as among civilized peoples.

Prizes of the Ehrlich Foundation

The Paul Ehrlich-Stiftung has awarded Professor Levaditi, of the Pasteur Institute in Paris, the Paul Ehrlich gold medal for 1931, for his researches in the field of chemotherapy; also two money prizes to Prof. Hugo Braun, head of the university hygienic institute in Frankfort-on-Main, and to Dr. Walter Levinthal, head assistant at the Robert-Koch-Institut in Berlin, respectively, for their researches on the metabolism of bacteria and the virus of psittacosis. The prizes were bestowed with fitting ceremonies in Frankfort-on-Main, March 4 (Ehrlich's birthday).

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ITALY

(From Our Regular Correspondent)

Feb. 15, 1931.

The Council on Research

Senator Guglielmo Marconi, president of the Consiglio nazionale delle ricerche, reported to the prime minister the activities developed during the year by the research council in connection with public health and the program of studies for 1931. The committee on medicine will continue its investigations on irradiated foods, on rheumatism and on ancylostomiasis. It will study another problem that is of great interest; namely, the epidemiology of typhoid. The committee on biology has undertaken an inquiry on alimentation, which it will extend on a large scale to various regions and social classes. It will continue also the inquiry on the chemical composition of the food products of Italy, which when completed will permit the compilation of tables showing such composition, which today do not exist. On the basis of such tables it will then be possible to recommend suitable rations for the various classes of the civil and military population. The council has called attention to the need of scholarships for research workers, in order that they may devote themselves in tranquillity to scientific research that affects the progress of the nation.

Congress of Medicine and Colonial Hygiene

The third Congress of Medicine and Colonial Hygiene, which was organized by the Società italiana di medicina e igiene tropicale, was held recently in Tripoli, Africa.

AFRICAN RELAPSING FEVER

The official paper on "African Relapsing Fever" was presented by Colonel Martoglio and Captain Patanè, who pointed out that African relapsing fever, which is due to *Spirochaeta duttoni*, is endemic in tropical Africa and is transmitted to man by a tick of the genus *Ornithodorus*. In Italian Somaliland the presence of such ticks was demonstrated in 1918 by Croveri. There are, however, regions of Africa in which neither the tick nor the disease has been encountered. The speakers explained the characteristic diffusibility of relapsing fever and of the etiologic agent, of which they described, in addition to the morphologic and cultural characters, also the tendency to localize in vertebrates. Prophylaxis consists in the crusade against the tick and the small mammals that harbor it. As in the treatment of spirochetosis in general, notable progress has been realized with the adoption of arsphenamine preparations. Neoarsphenamine intravenously is the method of choice. With this treatment, according to investigations made by Reitano and Parisi, it can be brought about that in only 3 per cent of the cases are recurrences noted.

FRAMBESIA

The official paper on "Frambesia" was presented by Professor Gabbi, senator, medical clinician of Parma. This disease, which occurs in all the tropical and subtropical zones, is caused by *Spirochaeta pallidula sive pertenuis*, which was discovered by Prof. Aldo Castellani. It attacks both European and native, and is easily confounded with syphilis. An Italian scientific mission, headed by the speaker, carried out, last winter, research on frambesia as it appears in the Italian colony of Eritrea. Colonel Tedeschi, of the army medical corps, presented a communication in which he described several cases of frambesia observed in Derna and Barca, among the Eritreans and Arabians.

DENGUE

The official paper on "Dengue" was presented by Captain Alonzo, of the marine medical corps. Professor Di Domizio, chief veterinarian, discussed trypanosomiasis in animals. Professor Gabbi presented the results of an investigation conducted by Professor Schilling of Berlin on the virulence of strains of trypanosoma passed through the insect vector, *Glossina morsitans*. Professor Tedeschi discussed the drugs and medicinal plants of Cyrenaica. He spoke also on the crusade against tuberculosis, being carried on by the authorities of Cyrenaica and on research on the indexes of constitution and biochemistry in the native races, which serve as a basis for the integration of municipal and hospital statistics on tuberculosis. Lieutenant Nastasi spoke on the spread of tuberculosis among the Eritrean troops. Whereas in their native localities tuberculosis is rare, certain troops transported to Libya quickly acquire the disease and die. The cause was said to lie in the slight resistance of populations and individuals that, for the first time, come in contact with the Koch bacillus.

Meeting of Otorhinolaryngologic Society

The Società italiana di laringologia, otologia and rhinologia met recently in Rome, under the chairmanship of Professor Calanida of the University of Milan. Professor Caliceti of Bologna presented a paper on cicatricial laryngotracheal stenosis. After considering the causes—primary (traumatic and infective) and secondary—for interventions on the larynx, he concluded that about 50 per cent of cases of cicatricial stenosis are due to therapeutic interventions in diphtheria. Chief among these are protracted intubations, which cause ulcerations and granulations and later laryngeal stenosis of cicatricial origin. Other types of intervention (tracheotomy, cricotomy, laryngofissure, partial laryngectomy) may be the cause of stenosis. The speaker discussed the treatment of such stenoses. The best treatment thus far is laryngostomy, as devised by Professor Ruggi. The outcome of the discussion was to the effect that, except in a few fortunate cases, the treatment of laryngotracheal cicatricial stenoses by means of the most perfect laryngostomy should be regarded as a long and difficult operation the final results of which are uncertain. Even after a plastic operation has been done and the opening is closed, most of these patients are handicapped for the remainder of their life, which is appreciably shortened. Hence, the problem is not yet solved, and the measures taken to prevent the production of such grave sequels of therapeutic interventions should be intensified. Diphtheria will be treated by generous serotherapy. Whenever intubation is unavoidable, it should be done, but it should not be protracted beyond the time strictly necessary.

At this point, a bust of Professor Ferreri, the lamented director of the Clinica di Roma, was unveiled; then the presentation of communications was resumed. In laryngology, Ferreri and Rocchi emphasized the good diagnostic results that may be secured by means of bronchoscopy if an internist collaborates with the laryngologist. In rhinology, Caliceti discussed the operation of dacryocystorhinostomy by the internal route, as devised by Toti. In pharyngology, Calamida spoke on the relation between chronic tonsillitis and general infections; Torrigiani on the treatment of sarcomas by radiotherapy; Citelli on a number of cases that he had observed of abscess of the sublingual region.

A Graduate School of Oncology

At the University of Rome, a graduate school of oncology has been created to provide physicians with more knowledge on the etiology, pathogenesis and diagnosis of malignant tumors. The courses will extend over a period of twelve months. The school will be directed by Prof. Antonio Dionisi, academician of Italy, director of the Institute of Pathologic Anatomy of the University of Rome.

Antivirus Therapy in Ophthalmology

At the recent congress, held in Rome, of the Società di oftalmologia, Dr. Giorgio Carracoy, director of the "Tubi Lux" Laboratories in Naples, offered the sum of 5,000 lire ($250) for the creation of a prize to be awarded to the author submitting the best work on the subject of "Local antivirus therapy in

ophthalmology; experimental studies; practical applications; advantages of the new therapy over clinical remedies." This prize will be awarded, along with many others, in connection with the congress of 1931, by the Fondatione a favore degli studi oftalmologici.

Institute for the Diagnosis and Treatment of Asthma

There has been established in Bellagio, near Lake Como, an institute for the diagnosis and treatment of asthma and other allergic diseases. The institute, in addition to having the most modern equipment, has laboratories for the preparation of material needed for the determination and for the desensitization of allergic states; namely, extracts of pollen, proteins, and bacterial cultures.

RIO DE JANEIRO

(From Our Regular Correspondent)

Feb. 15, 1931.

Effects of Temperature on Infectiousness of Aedes Aegypti

Dr. Nelson C. Davis of the Laboratories of the International Sanitary Commission of the Rockefeller Foundation in Bahia, Brazil, recently finished a large series of experiments made with the aim to determine the effect that several temperatures may have on the development of the infectiousness of *Stegomyia*. He presented the results of his experiments. The insects were kept in an atmosphere saturated with humidity in such a form that the relative humidity could not cause any influence on the results. The mosquitoes were always submitted to experimental temperatures immediately after they had been fed on monkeys infected with yellow fever. The calculations comprised the number of days that elapsed between the day when the mosquitoes were fed on infected animals and the day in which they were fed on normal monkeys to cause the transmission of yellow fever to the latter. Mosquitoes kept at an average temperature of 37 C. for four days (the first two days at 38 C. and the last two days at 36 C.) were fed at the end of this period on normal animals and they produced by their bites fatal attacks of yellow fever. Aragão cites a case of yellow fever transmitted by mosquitoes four days after they had become infected. The author, however, does not know what was the temperature at which the insects were kept. Mosquitoes kept during five days at a temperature of 36 C. transmitted the infection. One of the two monkeys in this experiment died from yellow fever; the other recovered and was immune to new infections. Mosquitoes kept during six days at a temperature of 31 C. (sometimes the temperature fell to 30.5 C.) and then fed on a normal *Macacus rhesus* produced a fatal infection in that animal. A batch of mosquitoes kept at room temperature at an average of 25 C. during eight days and then fed on normal monkeys produced a typical yellow fever infection. Some batches of mosquitoes kept during thirty days at a temperature of 18 C. and then fed on normal animals failed to transmit the infection. However, when after that period the insects were brought to the laboratory temperature they transmitted the disease. This seems to indicate that the infectiousness of the virus of yellow fever develops even if the mosquitoes that have ingested it are kept at low temperatures.

The author quotes Hindle's article (*Lancet* **2**:835 [Oct. 18] 1930) in which the transmission of the infection after an incubation of twenty days by mosquitoes that had been kept at temperatures varying from 15 to 18 C. are reported. In this article the transmission of the infection under these circumstances is considered unexplainable. Out of a batch of mosquitoes kept at a temperature of 18 C., about sixty were fed on normal monkeys after an incubation of twenty days and about eighty after an incubation of thirty days. Both batches failed to produce infection and there was only one monkey that developed an attack of fever after a long period of incubation. Its attack, however, was not of yellow fever because the inoculation of its blood gave negative results and the animal remained sensitive to the infection after its attack. Mosquitoes kept at 8 C. failed to produce infection after an incubation of twenty-eight days. After that period the same batch of mosquitoes were kept during eighteen hours at room temperature and then during six days more they were kept at 36 C. After these periods of changes of temperatures the insects were fed on a normal monkey, which developed a fatal case of yellow fever. Mosquitoes kept at a temperature of 36 C. caused a fatal infection when the insects were fed on normal monkeys after an incubation of five and then of seven days. However, when the animals were fed on a normal monkey, after an incubation of twenty days, an attenuation of the virus was suspected because the infection was not fatal. This attenuation, however, may have been temporary because both the inoculation from its blood and the transmission of the virus to other monkeys by the bites of mosquitoes produced fatal attacks of yellow fever. Some batches of mosquitoes that were kept during seven hours at a temperature of 40 C. and subsequently at room temperature were fed on normal monkeys after an incubation of seventeen and of twenty-eight days. In each of the experiments, about fifty mosquitoes were fed on normal monkeys. In both experiments the infections caused were not fatal. Thirteen mosquitoes, which originally belonged to the same batch but were not submitted to a high temperature as the others were, caused a fatal attack of yellow fever of rapid evolution after an incubation of twenty-eight days after they had become infected. Six mosquitoes, the survivors of a batch submitted to a temperature of 45 C. for two hours, were kept during fifteen days at room temperature. At the end of this period they were fed on a normal monkey, which developed a fatal attack of yellow fever. The author's experiments proved that the virus of yellow fever is not attenuated if mosquitoes that have ingested it are kept at low temperatures as, for instance, at 8 C. This statement agrees with Hindle's conclusions. If the insects are kept for a prolonged period at a high temperature, it is possible that the virus may suffer some attenuation. Mosquitoes, however, are sensitive to high temperatures and they die before the yellow fever virus can be destroyed.

Vital Statistics of Rio de Janeiro

During the year 1929 there were 8,830 marriages and 39,042 births (of which 36,188 were live births and 2,854 stillbirths) in the Federal District of Brazil. In the same year 25,955 deaths occurred (that is, a coefficient of 15 per thousand of population). The still-born rate, which was diminishing from 1920 to 1923, began to rise again from 1923 to 1929. The outgoing and incoming of persons to Rio de Janeiro gave a deficit of 26,109 inhabitants, which may be attributed to the presence of yellow fever at Rio de Janeiro. The population of the city was estimated in 1927 as 1,729,799 inhabitants, which number seems to be quite correct unless the next census proves the opposite. The Yellow Fever Commission listed 198,000 houses. Knowing the shortage of houses and that all of them are usually overcrowded, it may be considered as an average of ten persons per house, which gives a total population of 1,980,000.

Marriages

EDWARD JOSEPH TRACY, 1st Lieut., M. C., U. S. Army, Detroit, to Miss Nancy Gibson Kling of New York, March 6.

EDGAR MINTON FETTER, San Diego, Calif., to Miss Evelyn Byrd Thompson in La Grange, Ga., March 11.

JOHN H. GIBBON, JR., Philadelphia, to Miss Mary Hopkinson of Boston, March 14.

DONALD G. CORBETT, Seattle, to Miss Georgia Ann Kendall in Baltimore, March 7.

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Deaths

William Keiller ✠ Galveston, Texas; L.R.C.P., Edinburgh, L.R.C.S., Edinburgh, and L.F.P.S., Glasgow, Scotland, 1888; F.R.C.S., Edinburgh, 1890; professor of anatomy and formerly dean, University of Texas School of Medicine; member of the American Association of Anatomists; past president of the State Medical Association of Texas; author of "Nerve Tracts of the Brain and Cord and Applied Neurology," and co-author of "Text-Book on Anatomy by American Authors"; aged 69; died, February 22, of heart disease and arteriosclerosis.

Carl G. Leo-Wolf, Niagara Falls, N. Y.; University of Leipzig, Germany, 1894; member of the Medical Society of the State of New York; formerly instructor in pediatrics at the University of Buffalo; at one time city health officer and member of the school board; on the staff of the J. N. Adam Memorial Hospital, Perrysburg; author of "The Child in Health and Illness," and "Nursing in Diseases of Children"; aged 62; died, March 8, of coronary thrombosis and dilatation of the heart.

Samuel Holmes Durgin, Boston; Harvard University Medical School, Boston, 1864; member of the Massachusetts Medical Society; lecturer on hygiene at his alma mater, 1894-1909; Civil War veteran; past president of the American Public Health Association; for many years chairman of the city board of health; aged 91; died, March 6, in the State Hospital, Foxboro, of arteriosclerosis.

Benjamin Franklin Fridge, Jr. ✠ Major, M.C., U. S. Army, Hot Springs National Park, Ark.; College of Physicians and Surgeons, Little Rock, 1915; entered the regular Army as a first lieutenant in 1918, was promoted to captain in 1920 and major in 1929; aged 39; stationed at the Army and Navy General Hospital, where he died, March 7, of chronic ulcerative colitis.

William A. Lemire, Escanaba, Mich.; St. Louis College of Physicians and Surgeons, 1899; member of the Michigan State Medical Society and the Michigan State Board of Medical Examiners; formerly member of the state legislature, mayor of Escanaba and member of the board of education; aged 53; was killed, March 2, by electric shock from a roentgen-ray machine.

Alfred Harshaw Perfect, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1887; Victoria University Medical Department, 1887; formerly assistant professor of surgery, University of Toronto Faculty of Medicine; member of the American College of Surgeons; on the staff of the Toronto Western Hospital; aged 69; died, February 7.

James J. Hogan, Ashtabula, Ohio; Detroit College of Medicine, 1894; member of the Ohio State Medical Association; past president and secretary of the Ashtabula County Medical Society; on the staff of the Ashtabula General Hospital; aged 58; died, February 25, of mitral stenosis, following rheumatic myocarditis.

Raymond Smith Seibert, Trenton, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1909; member of the American College of Surgeons; served during the World War; on the staff of the McKinley Hospital; aged 47; died, February 23, of chronic valvular heart disease.

John Pearse O'Leary, Vicksburg, Miss.; Medical Department of the Tulane University of Louisiana, New Orleans, 1895; member of the Mississippi State Medical Association; aged 60; died, February 23, in the Vicksburg Sanitarium, of bronchiectasis and chronic myocarditis.

Earle Emerson Bessey ✠ Newton, Mass.; Dartmouth Medical School, Hanover, N. H., 1901; member of the American Psychiatric Association and the New England Society of Psychiatry; proprietor of the Knollwood Sanitarium; aged 60; died, February 16, in Waterville, Me.

Edwin Shoemaker ✠ Newfane, N. Y.; Trinity Medical College, Toronto, Ont., Canada, 1898; past president of the Niagara County Medical Society; health officer of the town of Newfane; aged 60; died, February 25, of septicemia, following a cut received on the chin while shaving.

Benjamin Hershey Grove ✠ Buffalo; University of Buffalo School of Medicine, 1880; medical director of the Charity Eye, Ear and Throat Hospital of Erie County; aged 71; died, March 2, in the Millard Fillmore Hospital, of uremia, nephritis, chronic prostatitis and myocarditis.

Samuel L. McCarthy, Altoona, Pa.; Jefferson Medical College of Philadelphia, 1870; member of the Medical Society of the State of Pennsylvania; past president of the Blair County Medical Society; formerly member of the school board; aged 86; died, February 22, of pneumonia.

Andrew Jackson Clardy, Wadley, Ala.; Chattanooga (Tenn.) Medical College, 1900; member of the Medical Association of the State of Alabama; formerly mayor, bank president and member of the school board; aged 54; died, February 16, of nephritis.

Walter W. Blakeney, Millport, Ala.; Memphis (Tenn.) Hospital Medical College, 1901; member of the Medical Association of the State of Alabama; aged 54; died, in February, at a hospital in Birmingham, of chronic nephritis, myocarditis and arteriosclerosis.

Allen Hoyt Beaman ✠ Woodmere, N. Y.; University and Bellevue Hospital Medical College, 1899; formerly on the staff of St. Joseph's Hospital, Far Rockaway; aged 55; died in March at the New York Post Graduate Hospital, of carcinoma of the cecum.

Vernon Meadows Jared ✠ West Palm Beach, Fla.; Hahnemann Medical College and Hospital, Chicago, 1912; formerly associate professor of pathology at his alma mater; aged 43; died, February 22, in a local hospital, following an operation for appendicitis.

John Turpin Callaway ✠ Birmingham, Ala.; Birmingham Medical College, 1911; served during the World War; formerly mayor and member of the city council of Edgewood; aged 48; died, February 28, in a hospital at Sarasota, Fla., of chronic myocarditis.

Lincoln Phillips, Cincinnati; Pulte Medical College, Cincinnati, 1892; formerly professor of pediatrics at his alma mater; for many years on the staff of the Bethesda Hospital; aged 63; died suddenly, March 17, of chronic endocarditis and mitral insufficiency.

Robert Spear Lowry ✠ Kingsville, Ohio; Medico-Chirurgical College of Philadelphia, 1904; member of the Florida Medical Association; served during the World War; aged 50; died, February 23, in the Ashtabula (Ohio) General Hospital, of pneumonia.

William A. Putnam, Forestville, N. Y.; University of Buffalo School of Medicine, 1884; member of the Medical Society of the State of New York; for many years member of the school board; aged 76; died, February 23, of heart disease.

William Randall Andrews, Fairmont, W. Va.; Hahnemann Medical College and Hospital of Philadelphia, 1892; member of the West Virginia State Medical Association; aged 69; died, March 1, in Jacksonville, Fla., of hypertrophy of the prostate.

Charles Delano Hustead, Aurora, Neb.; University of Louisville (Ky.) School of Medicine, 1891; member of the Nebraska State Medical Association; served during the World War; aged 67; died, February 21, of cerebral hemorrhage.

Peter F. Moylan ✠ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1887; formerly on the staffs of St. Mary's, St. Joseph's and the Misericordia hospitals; aged 70; died, March 10, of cerebral hemorrhage.

Alice Mandané Johnston, Columbus, Ohio; Woman's Medical College of Pennsylvania, Philadelphia, 1889; member of the Ohio State Medical Association; aged 63; died, March 2, of bronchopneumonia, following influenza, and myocarditis.

Philip A. Warter ✠ Evansville, Ind.; Vanderbilt University School of Medicine, Nashville, Tenn., 1900; formerly city health officer; aged 56; on the staff of the Protestant Deaconess Hospital, where he died, March 3, of cerebrospinal meningitis.

Thomas Francis Gunning ✠ Fall River, Mass.; University of Pennsylvania School of Medicine, Philadelphia, 1891; on the staff of the Fall River General Hospital; aged 68; died suddenly, March 17, of coronary occlusion and arteriosclerosis.

Herman Lyman Chase, Palmyra, N. Y.; Albany Medical College, 1875; member of the Medical Society of the State of New York; member of the board of education; aged 78; died, February 24, of chronic interstitial nephritis.

Jacob Wright Magelssen, Rushford, Minn.; Rush Medical College, Chicago, 1866; formerly member of the city council and school board, and mayor; aged 87; died, January 9, of arteriosclerosis and organic heart disease.

Chauncey A. Marchand ✠ Buffalo; University of Buffalo School of Medicine, 1921; member of the division of child hygiene of the city board of health; aged 34; was found dead, March 16, of illuminating gas poisoning.

George P. Powell ✠ Dixon, Ill.; Jefferson Medical College of Philadelphia, 1893; served during the World War; on the staff of the Dixon Public Hospital; aged 61; died, February 8, in Hermosa, Calif., of toxic poisoning.

Job Gustave Holland, Holland, Va.; Medical College of Virginia, Richmond, 1884; member of the Medical Society of Virginia; formerly bank president; aged 69; died, February 14, of nephritis and myocarditis.

James Asa Garland, Los Angeles; Northwestern University Medical School, Chicago, 1896; member of the California Medical Association; aged 59; died in February at South Pasadena, Calif., of pernicious anemia.

Benjamin Franklin Neal, Ellenville, N. Y.; Dartmouth Medical School, Hanover, N. H., 1877; health officer; on the staff of the Veterans' Memorial Hospital; aged 77; died, February 24, of heart disease.

James Henry McCall, Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1896; veteran of the Spanish-American and World wars; aged 63; died, February 24, of pernicious anemia.

George Mord ✠ Staten Island, N. Y.; Medical Department of Columbia College, New York, 1894; for many years on the staff of the Staten Island Hospital; aged 60; died, March 5, of cerebral hemorrhage.

William George Ramsey, Philadelphia; Jefferson Medical College of Philadelphia, 1893; served during the World War; aged 63; died, March 1, of streptococcic infection of frontal sinuses and myocarditis.

George Brooks Stewart, Memphis, Tenn.; Memphis Hospital Medical College, 1895; aged 60; medical superintendent of the Shelby County Hospital, where he died, February 15, of cirrhosis of the liver.

Arthur Seidman, Pittsburgh; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1898; died, February 21, in the Southside Hospital, of lobar pneumonia.

Henry Kechum Bradner, Warwick, N. Y.; University of Pennsylvania School of Medicine, Philadelphia, 1872; formerly health commissioner of Warwick; aged 82; died, February 27, of myocarditis.

Charles T. Dusenbury ✠ Monett, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1884; formerly member and president of the school board and city council; aged 69; died, Dec. 20, 1930.

John Logan Young, Flora, Ill.; St. Louis University School of Medicine, 1905; member of the Illinois State Medical Society; aged 64; died, February 22, of a self-inflicted bullet wound.

August H. Gorenflo, Detroit; Detroit College of Medicine, 1895; for many years chief surgeon for the police department; aged 56; died, March 3, of arteriosclerosis and cerebral hemorrhage.

Harvey Losee, Upper Red Hook, N. Y.; Medical Department of the University of the City of New York, 1898; aged 63; died, February 20, of lobar pneumonia and chronic diffuse nephritis.

Louis Jacob Linder ✠ East St. Louis, Ill.; American Medical College, St. Louis, 1898; aged 55; on the staff of St. Mary's Hospital, where he died, February 27, of diabetes mellitus.

Leo H. Shenier, West New York, N. J.; Niagara University Medical Department, 1896; formerly member of board of education; aged 64; died, February 11, in a hospital at New York.

Charles William Brasfield, Fairfield, Ala.; Birmingham Medical College, 1903; member of the Medical Association of the State of Alabama; aged 50; died suddenly, February 25.

Walter Scott Graham, New York; Albany Medical College, 1897; aged 61; formerly on the staff of the New York Hospital, where he died suddenly, February 10, of heart disease.

Chester William Bunce, Coral, Mich.; Grand Rapids Medical College, 1903; member of the Michigan State Medical Society; aged 78; died, February 25, of arteriosclerosis.

Darwin Richard Stockley, Cove, Wash.; College of Physicians and Surgeons, Chicago, 1895; aged 75; died, Dec. 29, 1930, of hypostatic pneumonia and chronic myocarditis.

Arthur W. Strout, Gardiner, Maine; Medical School of Maine, Portland, 1903; member of the Maine Medical Association; aged 51; died, January 16, of pneumonia.

John M. Shaller, Cincinnati, Ohio; Cincinnati College of Medicine and Surgery, 1878; aged 74; died, March 2, in Kansas City, of chronic myocarditis and arteriosclerosis.

John Henry Regan, Calexico, Calif.; Creighton University School of Medicine, Omaha, 1916; served during the World War; aged 37; died, January 31, of pneumonia.

Jacob William Eidson, Plymouth, Ind.; Medical College of Indiana, Indianapolis, 1884; formerly county coroner; aged 76; died, February 27, of cerebral hemorrhage.

Claude Leroy Difford, Cleveland; Medical Department of Western Reserve University, Cleveland, 1905; aged 51; died, February 22, of acute dilatation of the heart.

John P. Parmley, Mifflin, Wis.; Hahnemann Medical College, Chicago, 1879; formerly mayor of Mineral Point; aged 77; died, February 5, of bronchopneumonia.

Edmund William Littlefield, Los Angeles; University of Illinois College of Medicine, Chicago, 1912; aged 45; died, January 29, of portal cirrhosis of the liver.

John D. Gorman, New York; University of Vermont College of Medicine, Burlington, 1888; aged 69; died, February 20, in Collingswood, N. J., of arteriosclerosis.

Robert Booth Kirkpatrick, Peoria, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1876; aged 75; died suddenly, February 26, of heart disease.

Roy Clifford Potter, Chillicothe, Ohio; University of Maryland School of Medicine, Baltimore, 1908; aged 49; died, Dec. 11, 1930, of cerebral hemorrhage.

Annie W. Marchant, Baltimore; Southern Homeopathic Medical College, Baltimore, 1899; aged 62; died, February 23, of angina pectoris and arteriosclerosis.

Ulysses Lincoln Hurt ✠ Seymour, Iowa; Northwestern Medical College, St. Joseph, 1891; aged 65; died, February 2, in St. Joseph's Hospital, Centerville.

Charles W. Hembree, Palmer, Tenn.; Chattanooga Medical College, 1904; aged 55; died, February 23, in a hospital at Nashville, of cerebral hemorrhage.

Peter B. Elliott, Blacksburg, Va.; College of Physicians and Surgeons, Baltimore, 1895; aged 62; died, February 15, of chronic myocarditis and nephritis.

Everett Mallory Culver, North Marlboro, Mass.; Medical Department of Columbia College, New York, 1881; aged 74; died, February 14, in New York.

Samuel M. Ford, Madison, Ind.; University of Louisville (Ky.) School of Medicine, 1872; aged 81; died, February 14, in Orlando, Fla., of heart disease.

William Gayle Dorroh, Madison Station, Miss.; Memphis (Tenn.) Hospital Medical College, 1893; aged 60; died, February 5, of cerebral hemorrhage.

Gilbert B. Johnston ✠ Abbotsford, Wis.; University of Michigan Medical School, Ann Arbor, 1887; aged 67; died, February 20, of pneumonia.

Almonty Boyd, Independence, Mo.; University of Louisville (Ky.) School of Medicine, 1892; aged 70; died, Dec. 17, 1930, of phosphorus poisoning.

John H. Bell, Monroe City, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1875; aged 79; died, February 19, of cirrhosis of the liver.

Bolivar R. Smith, Booneville, Miss. (licensed, Mississippi, 1882); aged 76; died, Dec. 9, 1930, of prostatic obstruction and chronic myocarditis.

Winfield Scott Cole, Covington, Ky.; Eclectic Medical Institute, Cincinnati, 1894; aged 69; died, February 25, of chronic nephritis.

Benjamin Gaston Team, New York; North Carolina Medical College, Charlotte, 1909; aged 46; died, February 23, of heart disease.

Jacob B. Stogol, Chicago; Barnes Medical College, St. Louis, 1899; aged 75; died, February 28, of chronic nephritis and uremia.

Bernard G. Connolly, Ottawa, Ont., Canada; University of Toronto Faculty of Medicine, 1896; aged 65; died, January 11.

Thomas L. Arnold, Kingston, Ga. (licensed, Georgia, 1888); aged 72; died, March 3, of cerebral hemorrhage.

Frederick D. Marcum, Ceredo, W. Va.; Louisville (Ky.) Medical College, 1894; aged 58; died, February 13.

Clay Hugh Turpin, Seattle; Barnes Medical College, St. Louis, 1907; aged 54; died, Dec. 9, 1930.

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Bureau of Investigation

NORMAN BAKER'S RADIO STATION KTNT

Chief Examiner of the Federal Radio Commission Recommends that Application for Renewal of Broadcasting License be Denied

Norman Baker of Muscatine, Iowa, the owner and operator of radio station KTNT, exploits alleged cancer cures as part of his commercial activities. Incidentally, he is suing the American Medical Association for half a million dollars for alleged libel.

The public, and even members of the medical profession, have but a hazy idea of the powers of the Federal Radio Commission in the matter of controlling material that goes on the air. The Radio Act of 1927 gives to the Radio Commission the authority to issue renewals or modify the licenses of radio stations. The same Act specifically states that the Radio Commission has no power of censorship, nor any power to interfere with the right of free speech by means of radio communications. It does declare, however, that no person within the jurisdiction of the United States shall utter any obscene, indecent, or profane language by means of radio communication.

Not long ago, Norman Baker applied for a renewal of his broadcasting license for his station, KTNT. In deciding whether or not such a license should be renewed, it became the duty of the Radio Commission to determine whether Baker's station had served public interest, convenience or necessity. The Hon. Ellis A. Yost, Chief Examiner for the Federal Radio Commission, recently filed with the Commission his report covering the application for a renewal of KTNT's license. Mr. Yost, in his report, cited in support of his findings and recommendations (which will be dealt with later) the recent opinion of the Court of Appeals of the District of Columbia, which affirmed the action of the Federal Radio Commission in denying the application of Station KFKB for a renewal of its broadcasting license.

Mr. Yost pointed out that the Court of Appeals specifically held that all broadcasting is subject to the interest of the listening public which is paramount and may not be subordinated to the private interests of the owners of the radio station. The entire business of radio broadcasting is peculiarly impressed with the public interest, because the possible number of radio stations, due to the limited number of broadcasting frequencies, is strictly limited. The courts, therefore, have held that it was the evident intent of Congress that broadcasting should not be a mere adjunct of a particular business but should be of a public character. In view of this, the statement of facts of Mr. Ellis A. Yost in regard to the application of Baker's station, KTNT, for a renewal of its license, is worth quoting. Mr. Yost says:

"Norman Baker, licensee, owner and operator of Station KTNT, is engaged in a number of business enterprises for which the radio station is the advertising medium. Revenue to the station from other sources is negligible. Only one bookkeeper is employed, one set of books kept, and the miscellaneous items of all of these activities being handled together, the 'main, important things' being kept separately.

"The Baker Institute, founded primarily for the treatment of cancer, is advertised freely in Baker's talks over the station. Among other things, the public has been invited to witness the removal of a patient's skull without the use of a knife. Patients are permitted to give their testimonials as to treatment by means of the station.

"Baker, being dissatisfied with the local Muscatine, Iowa, newspaper, solicited over the radio station cancellation of subscriptions to that paper; organized the Progressive Publishing Company, of which he is President, for the purpose of establishing a newspaper at Muscatine, the stock being sold by him by means of the station. It is noted that while Baker announced in selling the stock that he would put up an amount of money equivalent to all other subscriptions to the stock, he has in fact paid in $22,500 of the total of $130,000 subscribed. In making sales, Baker promised a return of four times the investment.

"Contributions were solicited over the radio for the People's Protective Association over a period of months, but no organization has been developed. The funds so obtained are carried on Norman Baker's books. The purpose of this 'Association' as represented by Baker, is to fight for the public; 'not only to fight medical things, but other things for the benefit of the public.'

"*KTNT Magazine*, tires, gasoline, books, radio equipment, etc., handled by Baker's sales organizations are freely advertised and sold.

"The American Medical Association having disagreed with Baker's theories and practices in connection with Baker Institute, became the subject of venomous broadcast attacks by Baker from station KTNT, the association being referred to as the 'Amateur Meat-Cutters Association,' termed the 'Medical Trust,' and the members without exception being held up to the public as unscrupulous, immoral, inefficient, money-mad, malpractitioners. Those members of the medical profession who have personally incurred the displeasure of Baker have been subjected to scathing personal and professional attacks.

"State officials were subjected to similar attacks. The officials of the newspaper at Muscatine were referred to in personal attacks, as immoral, drunkards, damned liars, contemptible curs, scoundrels and cowards. The words prostitute and abortionist have been used in connection with radio attacks upon individuals."

Mr. Yost, after giving this statement of facts, calls attention to the further fact that the state of Iowa while entitled only to 7.3 units of radio facilities has, under present conditions 12.62 units, or 73 per cent above its quota. This by the way. Mr. Yost then gave in his report to the Commission the following conclusions:

"1. A radio broadcasting license imposes an inescapable obligation on the licensee to serve public interest, and promote public welfare.

"2. It is not in the public interest for a radio broadcasting station to provoke personal or community strife and turmoil, by means of radio communications.

"3. A radio broadcasting station licensee should not unjustly attack legitimate organizations or individuals in order to further his own personal interests and business.

"4. A station may have much in its public service record to commend it and at the same time there may be set over against this record sufficient objectionable matter to discredit such station.

"5. It is not necessary that a licensee violate any of the penal provisions of the Radio Act in order to forfeit the right to a renewal of license; this may be done by simply failing to serve public interest, convenience or necessity.

"6. A proper respect for the rights, privileges and opinions of all peoples should be observed and maintained by all licensees.

"7. Since the home is the principal listening post in the broad field of radio reception, nothing which tends to vulgarity, immorality or indecency has any place in radio communications.

"8. Anything that tends to unjustly destroy or injure the legitimate business of any person or group should not be broadcast by a licensee.

"9. A licensee may be entirely mistaken as to what constitutes a genuine public service."

Based on his "Statement of Facts" and the "Conclusions" drawn therefrom, Mr. Yost delivered the following findings to the Commission:

"1. The applicant [Baker] failed to establish that a renewal of the license of Station KTNT would be in the public interest, convenience or necessity.

"2. The use heretofore made by Station KTNT of the frequency of 1170 kilocycles does not warrant the further assignment of this frequency to applicant station.

"3. Station KTNT in serving the public with radio programs has subordinated the interests of the listening public to the interests of the licensee; whereas a license to operate a radio broadcasting station is in the nature of a public franchise, and should be used in the interests of the public and not for the personal interest of the licensee.

"4. In the broadcasting of Station KTNT, public interest, convenience and necessity have been made a mere adjunct to the personal business of the licensee.

"5. The public service record of Station KTNT does not warrant a finding that public interest, convenience or necessity would be served by granting this application.

"6. The granting of this application would not affect the present over-quota status of the State of Iowa or the Fourth Zone.

"7. A denial of this application would reduce the present over-quota assignment of the State of Iowa and the Fourth Zone by 1.7 units, and thereby tend to equalize and make more equitable the assignment of radio facilities among the several states and zones, as provided by Section 5 of the Act of March 28, 1928, amending the Radio Act of 1927.

"8. The granting of the application of Station KTNT for renewal of station license would not serve public interest, convenience or necessity."

Mr. Yost's report closes with the following recommendation:

"In consideration of the foregoing, it is recommended that the application of Station KTNT for a renewal of its radio broadcasting station license be *denied*."

Mr. Yost's report is, of course, not final but is subject to modification, approval or rejection by the Commission. Furthermore, the parties to the proceedings in this case, Norman Baker, has fifteen days in which to file objections or exceptions.

[After the article above was in type, the newspapers reported, through an Associated Press dispatch, that on March 26, the Radio Commission extended the license of Station KTNT until April 30, 1931, pending final decision.—ED.]

Correspondence

ACKNOWLEDGING REPRINTS

To the Editor:—For the first time in my life I have done the particular kind of thing I am about to describe and in view of what has happened my New England conscience pricks me. The "particular kind of thing" to which I refer was to order as many as 750 reprints of a recent article and to request the publishers to send them out to the addresses I submitted—"With the author's compliments." The addresses were to be found in certain society-membership lists obtainable in any medical library.

Now I have never heretofore ventured to order more than a modest number of reprints of any paper, and though I would perhaps be glad to have a few copies of some ancient ones that have run out, this is far outbalanced by the apparent impossibility of getting rid of great bundles of others which encompass and encumber me and which are the *bête noire* of my secretary who periodically dusts and rearranges them.

Occasionally a visiting physician says to me: "Doctor, won't you put me on your mailing list?" This request is invariably regretted for I reply: "My dear Sir, I never had a mailing list, though I am told there are such things, but I will be delighted to give you, while you are here, a few of my papers." Whereupon I load him down with samples of all the undesirable reprints I can find and we part with mutual expressions of esteem, he knowing that I got ahead of him, and I knowing that he will leave them on the seat of his taxicab at the station. But such an altogether informal manner of unloading reprints is, as I have discovered, a kindly act compared with this other abuse—the widespread distribution of papers "with the author's compliments."

To those hardened sinners who possess and utilize "mailing lists" for reprints (and I suspect they also employ them for other purposes such as the distribution of Christmas cards), my experience of the past few days may not be novel, but having for once caused much unnecessary trouble to many people, myself included, I desire while on the confessional to point out to all chronic distributors of reprints what mental anguish it brings to the addressees who are obliged to receive, to open, and before disposing of them—to acknowledge or not to acknowledge: that is the question.

Have you, my possible reader, ever taken into consideration the infinite variety and technic of reprint acknowledgments? There is, first of all, the chaste, engraved card, an indication of real swank, sometimes indeed with a space in which the title of the paper (even room for two titles) may be inserted by some long-suffering amanuensis. On the other end of the scale there are rubber-stamp acknowledgments to which the postcard lends itself. "I anticipate the pleasure of reading," etc., or "acknowledge with thanks the receipt," etc., is a frequent and much used method of holding out hope to the writer of the article that he may have hooked a fish. But "Having already seen your paper in So and So, I am glad to have it in this form for future reference" dashes any such hope as effectually as the assurances either that "Your paper will be a valuable addition to my library," or that "I look forward eagerly to being able to sit down and peruse," etc. Needless to say there are innumerable subdivisions of these several devices: those mentioning the title; those not mentioning the title; those signed by the recipient; those signed by the recipient's name with his secretary's initials subjoined; those with the recipient's signature evidently faked by his secretary; those wholly unsigned.

Now the writer has of course been guilty himself of using all these forms (the engraved card excepted) and he has up to this moment lived in hope of being able to put his mind on the acknowledgment of a mountain of as yet unacknowledged reprints that keep falling off a chair at the edge of his desk. But from now on he has decided, and ventures to suggest to the profession that they too (even at the risk of bankrupting Uncle Sam but with the assurance at the same time of lightening the labor of the postman) have the courage henceforth to accept reprints when received without acknowledgment unless there happens to be some real message to send to the author.

Should this be agreed upon, it will lighten secretarial burdens, save time and postage, and be a great boon to those who heretofore have felt conscience-smitten after consigning a reprint to the w. p. b. unacknowledged. If Gluyas Williams could be prevailed upon serially to depict the contortions of a conscientious man in the act of acknowledging or not acknowledging the morning's batch of reprints, it might, by injecting a little humor into the situation, help us to mend our ways and ease our minds.

H. C.

SPINAL ANESTHESIA EXCLUDING THE MOTOR NERVES

To the Editor:—The first spinal anesthetic that I recall at Harper Hospital was in 1903, when the German preparation stovaine was used. There was considerable toxicity reported following the use of this preparation in this country, and spinal anesthesia did not become really popular until the advent of procaine hydrochloride. Since then its popularity has increased until at the present time it is the anesthetic of choice in most of those cases in which general anesthesia was formerly administered. It may be said that there are two schools who enjoy debating respectively the superiority of "spinocaine" (lighter than the spinal fluid) and plain procaine dissolved in the spinal fluid itself. What speaks most eloquently for spinal anesthesia is to observe the ultraconservative surgeons adopting it as first choice in most of their work.

Following the administration of the average dose of procaine, from 100 to 200 mg., its effectiveness prior to the start of the operation is commonly tested by pinching the skin and having the patient move his feet or toes. The anesthetic onset, of course, is rapid and complete following administration. Anesthesia lasts, depending on the dosage, from one to two hours on an average, and it is longer before the patient is able to move his legs. This has proved somewhat disturbing to the occasional patient.

My purpose here is to call attention to my observation of approximately thirty patients operated on for anorectal disease. I decided to try a lesser dosage for these short operations and was surprised to find the patient still able to use his legs and feet at the end of five, and then ten minutes, following admin-

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istration of 50 mg. of procaine. Finally the perianal area was tested with Allis forceps by pinching the skin, disclosing sensory anesthesia to be complete. The operation was finished, and since that time by using from 40 to 50 mg., I have observed that in every instance the sensory anesthesia was present with no motor anesthesia. Patients were able to help themselves off the table in each instance and assist during the operation when necessary by voluntary straining. In no instance has the occasional postanesthetic headache or nausea been observed in these cases. It is my opinion that this selective action on the sensory nerves is due to the fact that the motor nerves have better insulation and that the weaker solution accounts for it. The technic has been carried out in the usual manner.

I have no doubt that others have made this observation, but I have not seen any report of it.

EDWARD G. MARTIN, M.D., Detroit.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CASTS IN URINE WITH NEGATIVE TEST FOR ALBUMIN

To the Editor:—I have been under the impression that, to find many hyaline or granular casts in the urine, it would be necessary to have a urine with positive albumin reaction. 1. Would a urine containing many hyaline or granular casts necessarily give a positive albumin reaction? 2. Would a urine containing sufficient leukocytes to give 50 cells to the low power field, uncentrifugated, necessarily give a positive albumin reaction? 3. Would a urine containing sufficient fresh blood to impart a definite color to it necessarily give a positive albumin reaction? Please omit name.

M.D., Ohio.

ANSWER.—1. Large numbers of casts in the urine do not in themselves imply organic disease of the kidney. They may represent temporary irritations and congestions. Todd and Sanford say that they may rarely occur in urine that does not contain albumin. Their presence, however, probably always indicates some pathologic change in the kidney, although this may be slight or transitory. A cast indicates the condition of the tubule in which it is formed but does not necessarily indicate the condition of the kidney as a whole.

2. Stitt says that 100,000 leukocytes per cubic millimeter of urine would be responsible for about 0.1 per cent of albumin. One may estimate from that figure by means of the pipet used for counting leukocytes in the blood whether 50 cells to the low power field would give a positive albumin reaction.

3. A urine containing sufficient fresh blood to impart a definite color to it would always give a positive albumin reaction. It should be remembered that normal urine probably contains about 0.005 per cent of serum albumin, which amount will not give positive reactions with the usual tests. The foregoing comments are made with those tests in mind.

COMPOSITION OF FOUNDATION CREAMS

To the Editor:—Can you give me the ingredients used in the so-called foundation creams for use on the face, such as are put up by the Elizabeth Arden Company and Lucile Dolle? Please omit name.

M.D., Ohio.

ANSWER.—For the cream used by actors as a foundation preparatory to applying make-up, the following formula is given by H. S. Redgrove and Gilbert A. Foan in their book "Paint, Powder and Patches" (London, William Heinemann, 1930):

Borax	1 part
Rose water	20 parts
White beeswax	18 parts
Liquid petrolatum (specific gravity 0.860)	61 parts

"Dissolve the beeswax in the liquid petrolatum by heating in the water bath. Dissolve the borax in the rose water, warm slightly, and pour the solution of borax into the solution of beeswax, stirring constantly in one direction until cold. The cream may be scented, as it cools, by adding oil of rose-geranium (0.5 to 1 per cent); or, better still, by the same quantity of a mixture of three parts of this oil and one part of patchouli oil. A trace of artificial musk essence may be added with advantage."

ABORTION OR REMOVAL OF PREGNANT UTERUS

To the Editor:—I have a patient, aged 30, who is three months' pregnant. She has four living children, and is in poor financial circumstances. She has been bleeding a little for the past ten days. The blood count shows: red blood cells, 4,600,000; white blood cells, 11,500; hemoglobin, 80 per cent. She has cystocele and rectocele. Would I be justified in removing this pregnant uterus, or should I follow a less radical procedure at this time? Would it be considered good surgery to remove this uterus? Under what circumstances, if ever, may a pregnant uterus be removed legitimately and ethically?

M.D., Pennsylvania.

ANSWER.—Removal of the uterus in this case is equivalent, of course, to performing an abortion. In this country as well as in most civilized countries, an abortion can legally be performed only for medical indication. The woman must have a medical ailment which is serious enough so that gestation will jeopardize her life or at least aggravate the disease to a great extent. The law in this country does not recognize a social or ethical indication for abortion. (In Russia an abortion may be done for nonmedical reasons.) However, there is no doubt that in the United States many abortions are performed for borderline cases in which there is a strong ethical indication plus a more or less minor medical ailment. Poverty in itself does not constitute an indication for an abortion. Poor women should be given careful and specific instruction in one of the commonly accepted methods of preventing conception. Some states have laws that permit or require sterilization of insane persons, but this condition is not only a social but a medical one. In the case cited the only real indication for terminating the pregnancy is bleeding. If this is sufficiently marked, it may be a satisfactory ground for emptying the uterus. The patient is too young to warrant the removal of her uterus. It is far safer to empty the uterus now from below and then at a later date perform a combined operation of repairing the cystocele and rectocele and also a sterilization operation on the fallopian tubes. There seems to be little opposition in this country to the performance of a sterilization operation when it is combined with other gynecologic operations on a nonpregnant woman, especially if the woman has a number of living children and she is poor. Before an abortion is performed for a medical indication it is essential to call another physician in consultation and have him give sanction in writing. Before a sterilization operation is performed it is imperative to obtain the written consent of both husband and wife.

The removal of a pregnant uterus is justified only for a strict medical indication. This may be a general medical ailment such as advanced tuberculosis, or a local uterine condition such as large fibroids, or obstetric conditions such as uteroplacental apoplexy, rupture of the uterus and uterine infection.

HARELIP A DEVELOPMENTAL ARREST

To the Editor:—The patient has a single complete harelip without any trace of cleft palate. The patient wishes to get married, and before doing so desires information as to the possibility of his children's inheriting this deformity. The family history for several generations (as far back as can be ascertained) is negative for harelip or cleft palate. If harelip has been proved to be inherited, can you express the relative chance of inheritance in a mathematical ratio for the offspring, male and female, of the first and second generations?

BASIL THOMPSON, M.D., Tucson, Ariz.

ANSWER.—So far as is known, harelip is a developmental arrest and not an inherited character.

USE OF HYDROCHLORIC ACID IN HYPOCHLORHYDRIA

To the Editor:—Does the administration of acid in hypochlorhydria cause an increase or decrease in the natural production of acid in the stomach?

J. D. RILEY, M.D., State Sanatorium, Ark.

ANSWER.—It cannot be denied that the administration of medicinal doses of hydrochloric acid before and possibly even after meals may reflexly increase the secretion of gastric juice in a manner analogous to that of the bitters; but it is as difficult to prove this effect by experimental demonstration as it is in the case of bitters. As far as actual tube observations on the human being is concerned, there is no doubt that the small dose of diluted hydrochloric acid usually administered therapeutically is far from sufficient to produce any titrable change in gastric acidity. So definite is this that the almost mathematical certainty with which the diarrhea of gastric anacidity can generally be controlled by such doses of hydrochloric acid has been ascribed to some alteration in pyloric tonus that antagonizes premature evacuation of gastric contents rather than to any improvement in digestive secretion.

CHRONIC PROSTATITIS

To the Editor:—A man, aged 30, first noticed premature ejaculation on intercourse two years ago. This, he realizes, was gradual, preceded by at least a year of frequency and moderate burning to which he paid little attention. Premature ejaculation followed every subsequent attempt. In this period of time he has been treated by various men, all of whom treated with prostatic massage and topical applications of silver ranging up to 50 per cent direct to the colliculus, which was diagnosed as being large and congested. Dilation also was done with the Kollman dilator up to 40 or 42 F. He has received at least thirty such applications. The venereal history is negative. At present he has a sharp burning on urination, which is increased by a full bladder or bowel movement. Several urologists have now pronounced the colliculus normal in size but have told me that the colliculus is covered with scar tissue, which is undoubtedly the cause of his symptoms, but leave me in a quandary as to what to expect next. I should like to know whether anything definite can be done to relieve his symptoms, since it is the most distressing case that I have had occasion to follow. I do not intend to treat the patient, but I am wondering whether he can be helped. Kindly omit name.

M.D., New York.

Answer.—The original symptoms point to the existence of chronic prostatitis, probably caused by a colon bacillus, the venereal history of the patient being negative. Prostatitis of course leads to a swelling and protrusion of the collicle. Treatment of this corollary symptom without relieving the underlying, causative condition will be barren. Repeated energetic cauterization of the collicle produces the cicatricial changes reported. The present therapeutic problem is the softening of the scar tissue and the restitution of normal condition of the prostate gland. Persistent medical diathermy, supported by hypodermic injections of thiosinamine, may furnish improvement.

ENLARGEMENT OF GLANDS IN AXILLA ASSOCIATED WITH MENSTRUATION

To the Editor:—I have a patient complaining of enlargement of the axillary lymph nodes at each menstruation. These attain the size of a walnut or a small lemon, are not painful, but are distressing because of their appearance when she is wearing short sleeve or formal dress. I cannot find anything in my textbooks on the subject. Is there any treatment besides surgical removal? Please omit name.

M.D., Michigan.

Answer.—The swellings described in this case are more likely due to enlargement of aberrant breast tissue than to increase in size of the axillary lymph glands. These swellings are most likely somewhat similar in nature to the engorgement of the breast tissue seen in the axillary regions of some women a few days after childbirth. There is no known conservative treatment for the prevention of this condition but it is advisable to wait a long time to see whether there will not be a spontaneous subsidence of these swellings. Surgical removal is the last resort.

IMMUNIZATION OF DOGS AGAINST RABIES

To the Editor:—How often should a dog be immunized against rabies? Is there any canine rabies vaccine that will immunize for life? If so, whose make?

George E. Johnson, M.D., Avon, S. D.

Answer.—It is generally considered from present available information that the prophylactic canine rabies vaccines (single-dose treatment) do not give an immunity that can be said to last longer than one year. The response of animals to vaccination varies with the individual. Some animals develop a stronger and more persistent immunity than others. Immunity, however, as a general thing should not be considered to last longer than one year.

SILK, LINEN OR CATGUT AS SUTURE MATERIAL FOR FIXING LIGAMENTS

To the Editor:—In the various operations for suspension of the uterus, such as the Baldy-Webster, Gilliam and Gilliam-Ferguson, the literature I find on the subject mentions the use of forty-day chromic catgut as the suture material to be employed in fixing the ligaments. If I am not mistaken, linen was formerly employed. Why is chromic gut used now in preference to linen? It seems to me that a nonabsorbable suture material would be better employed there than an absorbable kind, for the reason that it would hold better for a longer time and would allow stronger adhesions to develop to hold the parts in place. Is linen not as good as catgut, and, if so, why? If catgut is better, why? Please omit name.

M.D., Colorado.

Answer.—The linen that is available in most hospitals is relatively harsh and often somewhat too coarse for nonabsorbable suture material. A fine (in distinction from coarse) waxed silk, sufficiently firm to give support, is preferable. It is not improbable that this material will gradually supersede catgut in the operations under consideration. The number of days that catgut is serviceable varies enormously. It may last only a few days or may be sufficiently strong so that it can be depended on to hold firmly for a month or longer. Silk and linen sometimes act as "foreign body" irritants and produce sinuses. On this account neither should be employed in the presence of notable infection. In clean cases, fine silk almost never causes trouble.

EFFECTS OF DRINKING ODOR-O-NO

To the Editor:—A small child drank about an ounce of the well known cosmetic preparation Odor-O-No. No ill effects were observed until six hours after the ingestion of the liquid. Could you kindly advise me as to the constituents and toxic properties of same? Please omit name.

M.D., Ohio.

Answer.—The Chemical Laboratory of the American Medical Association reported, in 1913, that for all practical purposes Odor-O-No might be looked on as a 33 per cent solution of crystalline aluminum chloride, scented and colored. As aluminum compounds are not readily absorbed from the alimentary tract, even large doses cause merely local irritation and inflammation, resulting after swallowing in vomiting and diarrhea.

POSSIBILITY OF PREGNANCY AFTER MENOPAUSE

To the Editor:—A woman, aged 49, stopped menstruating after a short period of irregularity; in nine months thereafter she had one normal menstruation; from that time to the present, a period of nine and a half months, there has been no evidence of menstruation. She is now 50½ years of age. Is there any possibility of her becoming pregnant at the present time? Please use initials only.

M.D., New York.

Answer.—The possibility of pregnancy is exceedingly remote. Cases have been recorded, but they are rare.

"EPILEPSY—A CONTRAINDICATION TO MARRIAGE"

To the Editor:—In The Journal, Dec. 6, 1930, in this department was an answer on this subject. The reply given is not a universally accepted view. Until recently the hereditary background of epilepsy has scarcely been questioned, and the statistics purporting to show that from 30 to 80 per cent of patients with essential epilepsy have an hereditary background have passed unchallenged.

However, if one will review critically the evidence on which such figures are based, many serious objections will be obvious. In the first place, there is no uniformity of criteria for judging hereditary background. Many of the criteria considered in the past can hardly be held significant in the light of our present knowledge. The following list was compiled from the popular present-day systems of medicine and from several leading articles on the subject: hysteria, neurasthenia, obsessions, alcoholism, morphinism, insanity, suicide, stuttering, tic, temper, periodic headache, migraine, syphilis, tuberculosis, cancer, diabetes mellitus, diabetes insipidus, apoplexy, exophthalmic goiter, chorea, pellagra, chronic lead poisoning, bilious attacks, and uric acid diathesis. The presence of one or more of these conditions among the relatives, near or distant, was considered positive evidence of an hereditary predisposition to epilepsy. Such a list is sufficient in itself to show the futility of the conclusions.

The article of Snell referred to in the reply concludes that in 81 per cent of cases of essential epilepsy there is an hereditary background. But, judged by the same standards, in 67 per cent of normal controls similar ancestral characteristics were found. Would it not be more fair to conclude that 81 minus 67, or 14 per cent, more epileptics than normals had a predisposition to the disease, than to consider the figure of 81 per cent by itself?

It is impossible to estimate how large a rôle hereditary syphilis plays in many of the older but frequently mentioned statistics. Undoubtedly the Wassermann reaction was not in general use at the time some of the estimates were made. This fact may well account for some of the differences from more recent figures.

It should also be borne in mind that institutional patients, representing the most severe and chronic forms of the disease, have served almost exclusively for most studies, whereas a series of private patients would give a more accurate cross-section of the disease. The studies of Lennox (unpublished), of Ely (1930), and my own observations, all on non-institutional patients, agree on 10 to 15 per cent as a fairly reliable estimate of the incidence of convulsive seizures among the relatives. When from 3 to 5 per cent is deducted from this figure for coincidence, the remainder is not at all impressive as indicating an etiologic factor in epilepsy. Most of the neurotic traits and personality types considered in the older reports can now be explained easily from the point of view of behaviorism without recourse at all to heredity.

The problems that confront the person with epilepsy and his family are, at best, distressing. To live in the expectation of suddenly having an epileptic seizure necessarily makes one's outlook on life somewhat restricted. Thanks to the rapidity with which modern methods of treatment are developing, the limitations are becoming less year by year. But almost equally depressing is the popular attitude toward heredity, marriage and posterity and toward the mental changes that are sometimes associated with the disease. Enough has been said about the former to suggest how unfounded such attitudes are. Similar arguments could be presented concerning the latter. Why should the medical profession encourage the popular impression of utter hopelessness toward epilepsy?

Edwards M. Bridge, M.D., Baltimore.

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Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Philadelphia, June 8, 1931. Denver, July 23, 1931. Sec., Dr. William H. Wilder, 122 S. Michigan Ave., Chicago, Ill.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Philadelphia, June 6, 1931. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh, Pa.

ARIZONA: Phoenix, April 7-8, 1931. Sec., Dr. H. P. Mills, 14 N. Central Ave., Phoenix, Ariz.

ARKANSAS: Little Rock, May 4, 1931. Basic Science. Sec., Mr. Louis Gebauer, 1002 Donaghey Bldg., Little Rock, Ark. Homeopathic. Eureka Springs, May 12, 1931. Sec., Dr. Allison A. Pringle, Eureka Springs, Ark. Regular. Little Rock, May 12-13, 1931. Sec., Dr. S. J. Allbright, Searcy, Ark. Eclectic. Little Rock, May 12, 1931. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith, Ark.

COLORADO: Denver, April 7, 1931. Dr. W. W. Williams, 224 State Capitol Bldg., Denver, Colo.

IDAHO: Boise, April 7, 1931. Comm., Mr. Emmitt Pfost, Boise, Idaho.

ILLINOIS: Chicago, April 7-9, 1931. Supt. Mr. P. B. Johnson, Springfield, Ill.

MINNESOTA: Minneapolis, Regular, April 21-23, 1931. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul, Minn. Basic Science, April 7-8, 1931. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., University of Minnesota, Minneapolis, Minn.

MONTANA: Helena, April 7, 1931. Sec., Dr. S. A. Cooney, Power Block, Helena, Mont.

NEVADA: Carson City, May 4-6, 1931. Sec., Dr. Edward E. Hamer, Carson City, Nev.

NEW MEXICO: Santa Fe, April 13-14, 1931. Sec., Dr. W. T. Joyner, 20-21 First National Bank Bldg., Roswell, N. M.

TENNESSEE: Memphis, March 30-31, 1931. Sec., Dr. A. B. DeLoach, Medical Arts Bldg., Memphis, Tenn.

WISCONSIN: Milwaukee, April 14, 1931. Reciprocity Applications. Sec., Dr. R. E. Flynn, 315 State Bank Bldg., La Crosse, Wis.

Illinois October Examination

Mr. P. B. Johnson, superintendent of the Department of Registration and Education of Illinois, reports the written and practical examination held at Chicago, Oct. 14-16, 1930. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Seventy-four candidates were examined, 65 of whom passed and 9 failed. The following colleges were represented:

PASSED	Year Grad.	Per Cent
Chicago Medical School	(1930) 75, 77, 77, 77, 77, 77, 78, 78, 79, 79, 81, 83	
Loyola University School of Medicine	(1930)	76,
Northwestern University Medical School	(1927) (1930) 78, 78, 81, 81, 82, 84, 85	83
Rush Medical College	(1929) 82, 86, (1930) 77, 77, 78, 78, 79, 79, 80, 80, 80, 80, 81, 81, 81, 81, 82, 82, 83, 86	
University of Illinois College of Medicine	(1896) 80, (1930) 75, 77, 79, 79, 80, 80, 80, 81, 81, 81, 82, 82, 82, 84, 84, 85	
Washington University School of Medicine	(1930)	80
University of Nebraska College of Medicine	(1929)	84
Columbia University College of Phys. and Surgs.	(1922)	79
McGill University Faculty of Medicine	(1930)	84
University of Manitoba Faculty of Medicine	(1929)	76
Central University of Spain Faculty of Medicine	(1928)	77*

FAILED	Year Grad.	Per Cent
Chicago Medical College	(1930)	59.8, 73
College of Medicine and Surgery, Chicago	(1911)	50.2
Loyola University School of Medicine	(1930)	72.5
Northwestern University Medical School	(1930)	75.2†
University of Illinois College of Medicine	(1930)	74.9
University of Toronto Faculty of Medicine	(1928)	69.5
University of Western Ontario Medical School	(1913)	79.8‡
University of Bordeaux Faculty of Medicine	(1914)	71.2*

Mr. Johnson also reports 28 physicians licensed through reciprocity with other states and 9 by the endorsement of credentials at the same meeting. The following colleges were represented:

LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Yale University School of Medicine	(1926)	Michigan
Northwestern University Medical School	(1930)	Utah
University of Illinois College of Medicine	(1930)	California
Indiana University School of Medicine	(1928)	Indiana
State Univ. of Iowa College of Med.	(1905) (1928) (1929)	Iowa
University of Kansas School of Medicine	(1928)	Indiana
University of Louisville School of Medicine	(1928)	Kentucky
Tulane University of Louisiana School of Medicine	(1919)	Louisiana
Johns Hopkins University School of Medicine	(1926)	Minnesota
University of Minnesota Medical School	(1928)	Minnesota
St. Louis University School of Med.	(1924) (1928) (1929)	Missouri
Washington University School of Medicine	(1928) (1929)	Missouri
Creighton University School of Medicine	(1929)	Nebraska
University of Nebraska College of Medicine	(1925)	Nebraska
University of Cincinnati College of Medicine	(1923) (1930)	Ohio
Western Reserve University School of Medicine	(1921)	Ohio
University of Pennsylvania School of Medicine	(1928)	Penna.
Meharry Medical College	(1929)	Tennessee
University of Tennessee College of Medicine	(1928)	Missouri
University College of Medicine, Richmond	(1911)	Virginia
Marquette University School of Medicine	(1929)	Wisconsin
Free School of Homeopathic Medicine, Mexico	(1919)	Texas

ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
Yale University School of Medicine	(1925)	N. B. M. Ex.
Northwestern University Medical School	(1930, 2)	N. B. M. Ex.
University of Illinois College of Medicine	(1930, 2)	U. S. Navy
Johns Hopkins University School of Medicine	(1928)	N. B. M.Ex.
Harvard University Medical School	(1928)	N. B. M. Ex.
University of Minnesota Medical School	(1929)	N. B. M. Ex.
Syracuse University College of Medicine	(1928)	N. B. M. Ex.

* Verification of graduation in process.
† Failed to obtain grade of 60 in two subjects.
‡ Successful in written part of examination but failed to make required average of 75 per cent in clinical test.

Ohio Reciprocity Report

Dr. H. M. Platter, secretary of the State Medical Board of Ohio, reports that 23 physicians were licensed through reciprocity with other states and 1 by the endorsement of credentials at a meeting held Oct. 7, 1930. The following colleges were represented:

LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University School of Medicine	(1929)	W. Virginia
Loyola University School of Medicine	(1930)	Illinois
Indiana University School of Medicine	(1928) (1929)	Indiana
State University of Iowa College of Medicine	(1929)	Iowa
Tulane University of Louisiana School of Medicine	(1929)	Louisiana
Johns Hopkins University School of Medicine	(1915) (1927)	Virginia New York
University of Maryland School of Medicine and College of Physicians and Surgeons	(1928)	Maryland
Harvard University Medical School	(1925)	New Hamp.
Syracuse University College of Medicine	(1918) (1922)	New York
University of Buffalo School of Medicine	(1923) (1927)	New York
Eclectic Medical College	(1922)	Michigan, Indiana
Jefferson Medical College of Philadelphia	(1923) (1929) (1927)	W. Virginia Pennsylvania
Medico-Chirurgical College of Philadelphia	(1904) (1914)	Penna.
University of Pennsylvania School of Medicine	(1905)	Penna.
Meharry Medical College	(1929)	Tennessee
Medical College of Virginia	(1924)	W. Virginia

ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
Woman's Medical College of Pennsylvania	(1929)	N. B. M. Ex.

Book Notices

ENZYMES. By J. B. S. Haldane, M.A., Sir William Dunn Reader in Biochemistry, Cambridge University. Cloth. Price, $5.50. Pp. 235, with 35 illustrations. New York: Longmans, Green & Company, 1930.

The association of Professor Haldane with the late Professor Bayliss is in itself a recommendation to write a book on enzymes. The Nature of Enzyme Action by the late Professor Bayliss is one of the earlier monographs on biochemistry in the series edited by Plimmer and Hopkins. In a large measure it treated of the biologic nature of enzyme reactions and in a large measure was a polemic for the view now universally accepted that enzymes are catalysts. Haldane starts with this view as a point of departure for his own volume on enzymes. There is no dearth of textbooks and treatises on enzymes and enzyme action; the most notable is that of Oppenheimer and Kuhn, not to mention many others which have treated the subject. Consequently, the appearance of another volume on enzymes would appear to call for comment. The book is a general summary of the thermodynamic aspects of enzyme action and is based on a series of lectures given by Professor Haldane to his students since 1923. There are chapters on the influence of enzyme concentration and hydrogen ion concentration; the union of the enzyme with a substrate and related compounds; the influence of temperature and radiation on enzyme action; the course of enzymatic reaction and its mathematical theory; specificity; coenzymes, activators and kinases; the poisoning of enzymes; the purification and chemical nature of enzymes, and the theory on enzyme action and classification of enzymes. An excellent, though by no means complete, bibliography of the subject is given. The chapter on the purification and chemical nature of enzymes is an excellent review of the vast literature that has come from the laboratory of Professor Willstatter and his pupil Waldschmidt-Leitz, and of Euler, Summer and others. For those interested in a general knowledge of the subject of enzyme purification, a perusal of this chapter would be a good investment of time. It is one of

the few chapters in the book that is more qualitative than quantitative in nature. On account of the close interrelationship of the subject of enzyme action with organic chemistry and with chemical dynamics, the author has assumed on the part of his reader a knowledge of organic and physical chemistry and some degree of higher mathematics. The book should receive the same reception that other members of the series of biochemistry monographs have received.

LA PATHOLOGIE DU SYSTÈME PALLIDO-STRIÉ. Par P. Van Gehuchten, professeur à l'Université de Louvain. Paper. Pp. 51, with 17 illustrations. Louvain: Secrétariat de la Société Scientifique, 1930.

The incoordinated uncontrollable movements, as seen in Sydenham's chorea, athetosis and torsion spasms, or rigid states, as seen in parkinsonian conditions, have long been familiar to the medical profession but poorly interpreted. Some conditions, as torsion spasm and pseudosclerosis, used to be considered functional. Within the last two decades, especially after the appearance of the multitude of cases of postencephalitic states, many of the foregoing morbid conditions came to be understood as lesions of some subcortical centers of the brain, mainly of the corpus striatum, globus pallidus and substantia nigra. It is but natural that the unsettled state of a comparatively novel subject, its difficulty, gave rise to a variety of opinions. This led to an overproduction of contributions which unfortunately were not only numerous but often voluminous and rather confusing. For this reason the booklet by Van Gehuchten is opportune, for it gives a concise review of the clinical, physiologic, anatomic and pathologic features of the foregoing conditions, which are classified by some as pallidal and striatal syndromes. The difficult subject is treated with an open mind, conservatively and clearly. It is an excellently edited monograph, supplied with a small number of suitable pictures and drawings which are as unassuming as the treatise itself, yet highly instructive.

THE CHILD FROM ONE TO SIX: PSYCHOLOGY FOR PARENTS. By Ada Hart Arlitt, Ph.D., Professor of Child Care and Training, University of Cincinnati. With an introduction by Flora M. Thurston. Cloth. Price, $2. Pp. 188, with illustrations. New York: McGraw-Hill Book Company, Inc., 1930.

With the increasing complexity of life, new problems have presented themselves in the care of the child. Children find themselves forced into the company of adults for a great part of the time. It is much more difficult to restrict a child's contacts. The long hours in school make demands on the child's strength and energy. Consequently, it requires scientific control and training to prevent temper tantrums, fatigue, improper eating habits and wrong attitudes. The purpose of this book is to help parents who know little about psychology to understand what children are like and how they think and grow. Furthermore, much helpful advice is offered that will aid the parents in extricating themselves from difficult situations. Methods are presented for overcoming bad habits and wrong emotional responses in the child. For example, in the chapter on children's fears a valuable group of methods for removing the fear of some specified object is enumerated. The book includes chapters on obedience, discipline, punishment and rewards, habits, temper tantrums, fears, emotional control and imagination. The chapter on how the child thinks is a clear and simple explanation of the scientific facts in regard to the way a child's mind develops. Parents and educators in general will find much information of practical value in this book.

DAS ULCUSPROBLEM IM LICHTE MODERNER RÖNTGENFORSCHUNG. Von Priv.-Doz. Dr. H. U. Albrecht, Oberarzt der medizinischen Universitäts-Klinik, Frankfurt a. M. Paper. Price, 10 marks. Pp. 79, with 116 illustrations. Leipzig: Georg Thieme, 1930.

The author advocates the direct study of the gastric rugae by the Akerlund-Berg method. This method affords a roentgenologic study of the internal profile of the normal and pathologic mucous membrane almost as well as if the stomach had been opened. Instead of a full meal, only one swallow of the barium mixture is taken and its course through the stomach is watched. Four pictures are taken on one 18 by 24 cm. film to show the entire stomach. Compression is used to bring out the rugae of the stomach more clearly. For the duodenum, two exposures are taken in different diameters. This method attempts to correlate the direct comparison of the roentgenographic results with anatomic conditions. This was possible in 95 per cent of duodenal ulcers. In gastric ulcers more difficulty was encountered on account of failure to demonstrate shallow ulcers roentgenographically. Chronic gastritis is easily recognized and its importance in peptic ulcer is pointed out. Konjetzny is quoted to the effect that 100 per cent of stomachs resected for ulcer present chronic gastritis. Gastritis is recognized as a widening of the rugae. In stasis with fluid retention, this method is unfortunately inefficient. A gastric ulcer is recognized as a pocket filling on the first swallow and by the convergence of the rugae toward the lesion. The lesser curvature, antrum and posterior wall are the usual sites of ulcer. In duodenal ulcer the niche could be demonstrated in 90 per cent of cases. In the discussion of duodenal ulcer in 347 cases, 41 per cent were on the anterior wall and 58.5 per cent on the posterior wall. The great increase in the number of ulcers of the anterior wall over the usually accepted preponderance of ulcers of the posterior wall is explained as follows: Ulcers of the anterior wall heal and are not found at necropsy, whereas ulcers of the posterior wall do not heal. Acute ulcers are being studied in roentgenographic studies. Gastrojejunal lesions are likewise demonstrated by a niche and the convergence of rugae toward the defect. The illustrations are excellent; the references full. This short treatise is recommended as an introduction to a new method.

MODERNE BIOLOGIE.—MODERNE MEDIZIN. Herausgegeben von Prof. Dr. Hans Much. Heft 2-3: Umstellungstherapie: Spezifischen und unspezifischen Reiztherapie. Von Hans Much. Second edition. Paper. Price, 5 marks. Pp. 78. Leipzig: Ambrosius Barth, 1931.

This brochure defends the unorthodox thesis that nonspecific immunization is much more important than specific immunization; that, indeed, recovery from infectious diseases as well as natural immunity are due to the nonspecific reaction. Specific immunity is developed only as a secondary result of the nonspecific reaction in a limited number of diseases, such as the exanthems, mumps and pertussis; and it protects rather than cures. The further fact that in the immunization mechanism the cells are so much more important than the fluids of the body explains the failure of serotherapy to fulfil the high expectations with which it was launched. The author advances arguments to prove that even diphtheria antiserum is protective rather than curative. Were it curative, why should it fail when given at the height of the disease? To use colon and streptococcus and many other supposedly specific vaccines in those diseases whose etiologic agents do not produce any specific immunity, as in colon and streptococcus infection, is absurd. Whatever therapeutic effect these vaccines may have is nonspecific; and it would be more logical to employ a nonspecific agent, especially such a one as would be useful in the most diverse diseases. Unfortunately, the author seems to be unable to decide which one of the numerous nonspecific agents is the one to be used.

A TEXTBOOK ON THE NURSING AND DISEASES OF SICK CHILDREN FOR NURSES AND WELFARE WORKERS. By Various Authors. Edited by Alan Moncrieff, M.D., B.S., M.R.C.P., Medical Registrar and Pathologist to the Hospital for Sick Children, Great Ormond Street, London. With introduction by George R. Irving, M.D. Cloth. Price, $4.50. Pp. 580, with 111 illustrations. New York: G. P. Putnam's Sons, 1930.

Successful nursing requires a combination of knowledge and practical ability. A good nurse not only knows what to do but understands why she is doing it. Consequently, the nurse must make a rather careful study of a large variety of disease conditions. Unfortunately, her educational equipment is not always such as to make material written in the usual way understandable. This is probably the greatest criticism of this volume on the nursing of sick children. The material is accurate and concisely presented. However, there is some question as to how much of it the average nurse will grasp. On the other hand, it is suggested that the book will serve as a work of reference as well as a textbook and it will be satisfactory for this purpose. The first portion of the volume is devoted to a description of the normal child, a discussion of the general care of the child, and some facts concerning the sick child. There is then a chapter on general nursing and several chapters on general surgical nursing. The last part of the book includes descriptions of a large variety of disease conditions following the usual textbook plan.

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FEBRIS UNDULANS BANG DES MENSCHEN. Von Prof. Dr. W. Löffler. Heft 11, Band 26. Würzburger Abhandlungen. Von Prof. Dr. J. Müller. Paper. Price, 7 marks. Pp. 365-429, with 17 illustrations. Leipzig: Curt Kabitzsch, 1930.

This monograph deals with undulant fever of the bovine variety; that is, caused by *Brucella abortus* of bovine type. The causative organism is discussed together with its morphologic and cultural characteristics; also immune reactions and effects on animals, the epidemiology, the clinical manifestations, diagnosis, prognosis and treatment, and the pathologic anatomy of undulant fever. One obtains a good summary of the recent European observations on the disease. The most interesting chapter is the one on the pathologic anatomy, concerning which but little has been learned so far as the human infection is concerned. In guinea-pigs *Brucella abortus* causes granulomatous changes, especially in the spleen. Löffler describes and illustrates the changes in the spleen in a subchronic case of undulant fever. The spleen contained numerous small granulomatous foci, diffuse inflammatory changes, and a peculiar chronic endophlebitis. The spleen was excised during life and at the same time a bit of liver was removed which contained granulomatous nodules like the splenic. As the patient recovered promptly, as well as on the basis of clinical considerations, Löffler advances the interesting view that undulant fever is a splenohepatic process with the main seat in the spleen. This view will stimulate further investigation into the localization and lesions of undulant fever.

THE PRE-SCHOOL CHILD AND HIS POSTURE: A PROGRAM OF CORRECTIVE EXERCISES THROUGH GAMES. By Frank Howard Richardson, A.B., M.D., F.A.C.P., and Winifred Johnson Hearn, B.S., Instructor in Physical Gymnastics, Brooklyn Visiting Nurses Association. With a foreword by Jesse Feiring Williams, M.D., Professor of Physical Education, Teachers College, Columbia University. Cloth. Price, $2.50. Pp. 220, with 41 illustrations. New York: G. P. Putnam's Sons, 1930.

Whenever a therapeutic procedure for children requires active participation by the child in the application of the treatment, ways and means of holding the child's interest are required. This is especially true with regard to corrective exercises. Children evince little interest in the ordinary setting-up exercises. For the correction of flat feet, spinal curvatures and muscular weakness, and in the treatment of paralyses, exercises are indispensable. In this book are presented procedures for correcting motor and bony defects in children of preschool age. The first portion of the book deals with general suggestions concerning faulty posture in the preschool child and a comparison of the old and new methods for correcting the defects. The second and third parts present the actual methods to be employed. Various postural games are described and the place of music and dancing in the corrective program is discussed. The physical educator and others who are interested in the education of the preschool child will find this book of great value.

LE CHOC ANAPHYLACTIQUE ET LE PRINCIPE DE LA DÉSENSIBILISATION. Par A. Besredka, professeur à l'Institut Pasteur. Paper. Price, 30 francs. Pp. 276. Paris: Masson & Cie, 1930.

This presents an interesting discussion of the fundamental principles of anaphylaxis. The rôles an antigenic protein may play in anaphylaxis, namely, sensitization, shock production and desensitization, are discussed with illustrative clinical applications. Sensitization to pollens, sensitization to medicinal substances such as quinine, and other allergic manifestations are treated as instances of anaphylaxis without adequate reference to their peculiar problems. The book falls far short of giving a satisfactory account of the present knowledge of clinical allergy.

THE BEHAVIOR OF YOUNG CHILDREN. By Ethel B. Waring and Marguerite Wilker, Professors of Child Guidance, Cornell University. Volume I and Volume II. Volume I: Eating Behavior, Sleeping Behavior. Volume II: Dressing Toilet, Washing. With an introduction by Patty Smith Hill, Professor of Education, Teachers College, Columbia University. Boards. Price, $1 per volume. Pp. 121, and pp. 150. New York: Charles Scribner's Sons, 1930.

There are a large number of environmental factors responsible for the shaping of the child's behavior and character. The most important of these factors is the home—the parents. These two small volumes have been written to aid parents in learning how to study, analyze and guide the behavior of their young children in the home. Too often books on childhood behavior deal too much with generalities and too little with specific incidents. These volumes are unique in the manner of the presentation of the material. There are five separate fields of behavior discussed—eating, sleeping, dressing, toilet habits and washing. Specific behavior incidents are first presented and parents are urged to analyze these incidents to determine for themselves just what the child is learning from the behavior situation. Following the incidents are a series of quotations offering the opinions of authors concerning the field under discussion. Each chapter concludes with a series of questions about specific behavior rather than general behavior.

PROXIMATE COMPOSITION OF FRESH VEGETABLES. By Charlotte Chatfield, Specialist in Foods and Nutrition, and Georgian Adams, Associate Specialist in Foods and Nutrition. Foods and Nutrition Division, Bureau of Home Economics. United States Department of Agriculture, Circular No. 146. Paper. Price, 5 cents. Pp. 24. Washington, D. C.: Supt. of Doc., Government Printing Office, 1931.

This circular presents the chemical composition of vegetable foods used on the American table as collected from published and unpublished analyses from many sources. It is the first compilation of its kind since the appearance of the department bulletin "The Chemical Composition of American Food Materials" by Atwater and Bryant, reprinted in 1906. The tables of composition present for the respective vegetables the "percentage refuse" as purchased and the maximum, minimum and average analyses of the "edible portions," including water, protein, fat, ash, carbohydrates, fiber, sugars, starch and fuel value. The methods of analyses are defined. The collection of the data and their presentation in the practical form given represent a vast amount of painstaking and careful work. The department has done a valuable piece of work by the publication of these summarized data and makes readily available a mass of information otherwise almost inaccessible to the public. This circular will be welcomed by food chemists, dietitians, food specialists, physicians and all persons interested in food products.

THE MERRILL-PALMER STANDARDS OF PHYSICAL AND MENTAL GROWTH. By Charles A. Wilson, Mary E. Sweeny, Rachel Stutsman, Leone E. Chesire and Elise Hatt. Paper. Price, 50 cents. Pp. 121. Detroit: Merrill-Palmer School, 1930.

Because a young child is a rapidly growing organism, physical defects may impede progress and development to a great extent. It is important, therefore, to recognize abnormalities early so that corrective measures may be applied as soon as possible. The child's physical and mental growth can be determined by an evaluation of his height, weight, mental test scores and personality ratings. However, all such determinations are of much more value when they can be compared with a reliable norm. In this small book, standards on twenty-one traits in nursery school children of the Merrill-Palmer school are presented. In order to overcome the usual difficulties that arise in coordinating physical, mental and social and environmental measures, the percental method of statistical summary is employed. In addition to the usual physical measurements and mental tests, percental ranks are given for personality ratings, activity ratings, caloric intake, protein, fats and carbohydrate intake, and regularity of the night bed hour. Those who are directing the educational and physical progress of groups of small children will find in the tables here presented reliable data that can be used in making an estimate of the efficiency of their methods.

VACCINATION: FURTHER REPORT OF THE COMMITTEE. OBSERVATIONS ON THE EPIDEMIOLOGY AND THE CLINICAL AND PATHOLOGICAL CHARACTER OF POST-VACCINAL NERVOUS DISEASE WITH CERTAIN COLLATERAL PAPERS. Presented by the Minister of Health to Parliament by Command of His Majesty, November, 1930. Ministry of Health. Paper. Price, 2s. 6d. Pp. 114. London: His Majesty's Stationery Office, 1930.

This is an additional report by a committee appointed by the minister of health of Great Britain in conjunction with the Medical Research Council to report from time to time on matters relating to vaccination. The first report appeared in 1928. The present one gives an account of ninety cases of post-vaccinal encephalitis that occurred in Great Britain in the two years ended Sept. 30, 1929. In twenty-five cases postmortem examination had been made, and the conditions found in each case are related. For comparison there are reports of cases of encephalitis following smallpox, measles and influenza. There are appendixes dealing with other matters concerning vaccination.

Medicolegal

Sex Hygiene Pamphlet Not Obscene Literature

(United States v. Dennett (C. C. A.), 39 Fed. (2d) 564)

The defendant published and deposited in the mails a pamphlet purporting to give accurate sex hygiene information. She was convicted, after trial by jury, of mailing obscene matter in contravention of section 211, United States Criminal Code (18 USCA Sec. 334), which provides that every obscene, lewd, or lascivious pamphlet is nonmailable matter. She appealed to the Circuit Court of Appeals, Second Circuit, where the judgment of the trial court was reversed.

The important consideration in this case, said the appellate court, is the meaning and scope of the words of the statute which prohibit the mailing of an "obscene, lewd, or lascivious . . . pamphlet." It was for the trial court to determine whether the pamphlet could reasonably be thought to be of such a character before submitting to the jury any questions concerning the violation of the statute. The test most frequently laid down seems to have been whether it would tend to deprave the morals of those into whose hands the publication might fall. It may be assumed that any article dealing with the sex side of life and explaining the functions of the sex organs is capable in some circumstances of arousing lust. The sex impulses are present in every one and without doubt cause much of the weal and woe of human kind. It can hardly be said, however, that because of the risk of arousing sex impulses there should be no instruction of the young in sex matters, and that the risk of imparting instruction outweighs the disadvantages of leaving youth to grope about in mystery and morbid curiosity, to secure such information as they may be able to obtain, from ill informed and often foul-minded companions rather than from intelligent and high-minded sources. It may be argued that suggestion plays a large part in such matters and that on the whole the less sex questions are dwelt on the better. But it by no means follows that such a desideratum is attained by leaving adolescents in a state of inevitable curiosity, satisfied only by the casual gossip of ignorant playmates.

The old theory that information about sex matters should be left to chance has greatly changed. While there is still a difference of opinion as to just the kind of instruction which ought to be given, it is commonly thought in these days that much was lacking in the old mystery and reticence. The statute we have to construe, said the court, was never thought to bar from the mails everything which might stimulate sex impulses. If so, much chaste poetry and fiction, as well as many useful medical works, would be under the ban. The law must be construed reasonably, with a view to the general objects aimed at. It must not be assumed to have been designed to interfere with serious instruction regarding sex matters, unless the terms in which the information is conveyed are clearly indecent. No decision was brought to the attention of the court in which a truthful exposition of the sex side of life, evidently calculated for instruction and for the explanation of relevant facts, had been held to be obscene.

The defendant's discussion of the phenomena of sex, said the court, is written with sincerity of feeling and with an idealization of the marriage relation and sex emotions. We think it tends to rationalize and dignify such emotions rather than to arouse lust. While it may be thought by some that portions of the tract go into unnecessary details that would better have been omitted, it may be fairly answered that the curiosity of many adolescents would not be satisfied without full explanation, and that no more than that is really given. It also may reasonably be thought that accurate information, rather than mystery and curiosity, is better in the long run and is less likely to occasion lascivious thoughts than ignorance and anxiety. Perhaps instruction other than that which the defendant suggests would be better. That is a matter as to which there is bound to be a wide difference of opinion, but, irrespective of this, an accurate exposition of the relevant facts of the sex side of life in decent language and in manifestly serious and disinterested spirit cannot ordinarily be regarded as obscene. Any incidental tendency to arouse sex impulses which such a pamphlet may perhaps have is apart from and subordinate to its main effect. The tendency can exist only so far as it is inherent in any sex instruction, and it would seem to be outweighed by the elimination of ignorance, curiosity and morbid fear. The direct aim and the net result is to promote understanding and self-control.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Birmingham, April 21-24. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association for the Study of Goiter, Kansas City, Mo., April 7-9. Dr. J. R. Yung, 670 Cherry Street, Terre Haute, Ind., Secretary.

American Association for the Study of the Feeble-Minded, New York, May 25-28. Dr. Howard W. Potter, 722 West 168th Street, New York, Secretary.

American Gastro-Enterological Association, Atlantic City, May 4-5. Dr. Charles G. Lucas, 307 West Broadway, Louisville, Secretary.

American Gynecological Society, Hot Springs, Va., May 18-20. Dr. Floyd E. Keene, 1015 South 36th Street, Philadelphia, Secretary.

American Neurological Association, Boston, May 27-29. Dr. Henry A. Riley, 117 East 72d Street, New York, Secretary.

American Orthopedic Association, Memphis, Tennessee, April 15-18. Dr. DeForest P. Willard, 1916 Spruce Street, Philadelphia, Secretary.

American Pediatric Society, Edgewater Park, Mississippi, April 15-17. Dr. H. C. Carpenter, 1805 Spruce Street, Philadelphia, Secretary.

American Physiological Society, Montreal, April 8-11. Dr. Arno B. Luckhardt, 5216 Greenwood Avenue, Chicago, Secretary.

American Society for Clinical Investigation, Atlantic City, May 4. Dr. Cyrus C. Sturgis, Simpson Memorial Institute, Ann Arbor, Mich., Sec'y.

American Society for Experimental Pathology, Montreal, April 8-11. Dr. C. Phillip Miller, Jr., University of Chicago Department of Medicine, Chicago, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Montreal, April 8-11. Dr. E. D. Brown, University of Minnesota Medical School, Minneapolis, Secretary.

American Society of Biological Chemistry, Montreal, April 8-11. Dr. H. B. Lewis, University of Michigan Medical School, Ann Arbor, Mich., Secretary.

American Urological Association, Memphis, Tenn., May 18-22. Dr. Gilbert J. Thomas, 1009 Nicollet Avenue, Minneapolis, Secretary.

Arizona State Medical Association, Nogales, May 7-9. Dr. D. F. Harbridge, Goodrich Building, Phoenix, Secretary.

Arkansas Medical Society, Texarkana, April 21-24. Dr. William R. Bathurst, Boyle Building, Little Rock, Secretary.

Association of American Physicians, Atlantic City, May 5-6. Dr. James H. Means, Massachusetts General Hospital, Boston, Secretary.

California Medical Association, San Francisco, April 27-30. Dr. Emma W. Pope, 450 Sutter Street, San Francisco, Secretary.

Conference of State and Provincial Health Authorities of North America, Washington, D. C., April 29-30. Dr. A. J. Chesley, State Board of Health, St. Paul, Minnesota, Secretary.

Connecticut State Medical Society, Bridgeport, May 20-21. Dr. Charles W. Comfort, Jr., 27 Elm Street, New Haven, Secretary.

District of Columbia, Medical Society of, Washington, May 6. Dr. C. B. Conklin, 1718 M Street, N. W., Washington, Secretary.

Federation of American Societies for Experimental Biology, Montreal, April 8-11. Dr. H. B. Lewis, University of Michigan Medical School, Ann Arbor, Mich., Secretary.

Florida Medical Association, Orlando, May 11-12. Dr. Shaler Richardson, 111 West Adams Street, Jacksonville, Secretary.

Georgia, Medical Association of, Atlanta, May 12-15. Dr. Allen H. Bunce, 1439 Forrest Avenue, N. E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Wailuku, Maui, May 1-2. Dr. F. J. Pinkerton, Young Building, Honolulu, Secretary.

Illinois State Medical Society, East St. Louis, May 5-7. Dr. Harold M. Camp, Lahl Building, Monmouth, Secretary.

Iowa State Medical Society, Des Moines, May 13-16. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.

Kansas Medical Society, Manhattan, May 5-7. Dr. J. F. Hassig, Huron Building, Kansas City, Secretary.

Louisiana State Medical Society, New Orleans, April 14-16. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 28-30. Dr. John T. King, Jr., 1211 Cathedral Street, Baltimore, Secretary.

Medical Library Association, New Orleans, May 19-21. Miss Sue Biethan, General Library, University of Michigan, Ann Arbor, Mich., Secretary.

Minnesota State Medical Association, Minneapolis, May 4-6. Dr. E. A. Meyerding, 11 West Summit Avenue, St. Paul, Secretary.

Mississippi State Medical Association, Jackson, May 12-14. Dr. T. M. Dye, Clarksdale, Secretary.

Missouri State Medical Association, Joplin, May 11-14. Dr. E. J. Goodwin, 634 North Grand Boulevard, St. Louis, Secretary.

National Tuberculosis Association, Syracuse, N. Y., May 11-14. Dr. Charles J. Hatfield, Henry Phipps Institute, Philadelphia, Secretary.

Nebraska State Medical Association, Omaha, May 12-14. Dr. R. B. Adams, Center McKinley Building, Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 19-20. Dr. D. E. Sullivan, 7 North State Street, Concord, Secretary.

New Mexico Medical Society, Albuquerque, May 20-22. Dr. L. B. Cohenour, 219 West Central Avenue, Albuquerque, Secretary.

North Carolina, Medical Society of the State of, Durham, April 20-22. Dr. L. B. McBrayer, Southern Pines, Secretary.

Ohio State Medical Association, Toledo, May 12-13. Mr. Don K. Martin, 131 East State Street, Columbus, Secretary.

Oklahoma State Medical Association, Oklahoma City, May 11-13. Dr. C. A. Thompson, Memorial Station, Muskogee, Secretary.

South Carolina Medical Association, Greenville, May 5-7. Dr. E. A. Hines, Seneca, Secretary.

Tennessee State Medical Association, Knoxville, April 14-16. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.

Texas, State Medical Association of, Beaumont, May 5-7. Dr. Holman Taylor, Medical Arts Building, Fort Worth, Secretary.

West Virginia State Medical Association, Clarksburg, May 19-21. Mr. J. W. Savage, 303 Professional Bldg., Charleston, Executive Secretary.

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Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

Annals of Surgery, Philadelphia

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*Concealed Cancer of Tongue. W. F. MacFee, New York.—p. 481.
*Traumatic Pectus Excavatum. J. Alexander, Ann Arbor, Mich.—p. 489.
*Actinomycosis of Kidney. V. C. Hunt and C. Mayo, Rochester, Minn.—p. 501.
Enucleable Multilocular Abscess (Carbuncle) of Kidney. J. H. Neff, University, Pa.—p. 506.
*Indications and Technic of Combined Ureteronephrectomy. R. Gutierrez, New York.—p. 511.
*Extravasation from Ureter. J. F. Geisinger, Richmond, Va.—p. 544.
Fractures at Condyles of Femur. C. W. Cutler, Jr., New York.—p. 551.
Fracture of Shaft of Both Bones of Leg: 107 Cases. R. H. Kennedy, New York.—p. 563.
*Comparative Value of Metaphen in Alcohol-Acetone-Aqueous Solutions in Preoperative Disinfection of Skin. W. W. Scott and K. E. Birkhaug, Rochester, N. Y.—p. 587.

Concealed Cancer of Tongue.—According to MacFee there are two clinical types of cancer of the tongue which may be called concealed. There is the type which conforms to the classic descriptions of cancer but which escapes detection because of its situation. Cancers of this kind are located far back on the tongue, usually in its pharyngeal portion. Favorite sites are those at which there is angulation of the lingual mucous membrane as it merges into the mucosa of adjacent structures, as at the base of the pharyngeal tonsil or of the tonsillar sinus, at the lingual attachment of the glossopalatine arch, in the valleculae, or at the glosso-epiglottic fold. The other clinical type of concealed cancer escapes detection because it is almost completely buried in the substance of the tongue. This type is nearly always in the posterior half or two thirds of the tongue and is found most often on the inferior surface of the oral portion of the tongue, where its mucous membrane reflects onto the floor of the mouth. It differs strikingly from the usual conception of lingual cancer. Cancer of the tongue is most often described as a foul, irregular ulcer, with uneven floor and with rolled-out, hardened edges. On the contrary, the external ulcer of the infiltrating type of concealed cancer may be small or, indeed, missing, whereas the tumor mass may be large and deeply invading. There is usually a slight dimple or pucker in the mucous membrane over the most superficial part of the tumor. Here there may be a slight loss of epithelium or it may be intact. Often there is a slight pallor of the surrounding mucous membrane. Just why there should be such deep invasion with so little external ulceration is not apparent. Histologically, the tumor is squamous celled and not of adenomatous origin. This form of cancer may involve a large part of the tongue before it is discovered by either the patient or his physician. The three symptoms of pain in and about the ear, motor disturbances and painless sensory disturbances of the tongue are to be emphasized as among the earliest and therefore the most important symptoms of cancer of the tongue. Salivation, pain in the tongue itself, fetor, and all of the textbook symptoms eventually appear, but by the time they are present the condition usually is hopeless. The signs of concealed cancer of the tongue are often overlooked unless cancer is suspected. Hints of its presence, however, may be derived from the following: When the patient protrudes the tongue far out there is a tendency for it to deviate slightly toward the side of the lesion. This is due in part to replacement of lingual muscle by tumor tissue and partly to terminal motor nerve involvement, which produces an incomplete paralysis of the affected side of the tongue. Often a slight dimpling, furrowing, flattening or other evidence of retraction of the surface mucous membrane may be seen. Occasionally it is possible to detect a slight defect in the patient's speech. This results from mechanical disability of the tongue. Inspection may reveal a minute ulcer at the most superficial point of an infiltrating cancer. Lesions of the pharyngeal portion of the tongue may be revealed by the laryngeal mirror. Palpation properly done will nearly always reveal an area of induration.

Traumatic Pectus Excavatum.—Alexander describes the operative technics used in two cases of pectus excavatum because there has not been, so far as he is aware, any previous report of operation performed for the traumatic chronic type of this deformity. In neither case did the operation cause any detectable impairment of cardiac or respiratory function and in both the purposes for which operation was performed were fulfilled.

Actinomycosis of Kidney.—In the case reported by Hunt and Mayo the disease was confined entirely to the right kidney, as was evidenced by the patient's complete recovery after right nephrectomy. However, that the condition may have been secondary to actinomycosis of the appendix must be given consideration, even though such infection was never proved in the appendix or intestinal tract and even though there was no evidence that such infection ever had existed. The prognosis in actinomycosis in general is notoriously poor. Recovery from so-called primary renal actinomycosis, when the disease is confined to one kidney, may be expected only by means of nephrectomy and the institution of therapeutic measures such as those which are employed for actinomycosis in other situations. These measures were used in the case reported and are, in brief, the following: (1) maintaining the wound wide open to its most dependent parts; (2) packing the wound wide open, down to its lowest depth, with gauze saturated with dichloramine in 4 per cent solution, or with compound solution of iodine diluted to a strength of from one third to one half; (3) introducing radium into the wound as long as sulphur bodies are repeatedly found; (4) administering treatment by roentgen rays over the entire area, and (5) persisting in the use of iodides in the form of a 10 per cent solution of sodium iodide intravenously, or the oral administration of potassium iodide, or both.

Combined Ureteronephrectomy.—In summarizing his study, Gutierrez draws attention to the most important clinical and surgical features of combined ureteronephrectomy as a means of permanent cure at a single sitting, saving the patient from prolonged suffering, and shortening the time of convalescence. Among the many advantages of the two-stage ureteronephrectomy are: first, it divides the operative shock by the two separate incisions; second, it preserves the resistance of the abdominal wall against herniation; and, third, by cutting across the ureter behind the bladder in the lower abdomen, in the first stage of the operation, it makes the surgical procedure one of very simple technic and one that is anatomically avascular, an important consideration since, this being an aseptic operation, the wound heals by primary union. There is no handicap of contamination of the walls of the wound carried downward from the already infected kidney because, being in two separate and distinct fields, the procedure affords less chance of reinfection or of any injury being done to the peritoneum in opening it. The operation is quickly accomplished and the patient does not experience any greater reaction than in an ordinary nephrectomy. Finally, the surgeon feels sure that he has accomplished his duty and that obviously the patient will not have reflux, lumbar fistula, pyuria, hematuria, colic pain, bladder discomfort or any other complications or sequelae from the infected ureter stump, which, in many instances, are revealed later.

Extravasation from Ureter.—Geisinger reports three cases of extravasation from the ureter in the absence of external traumatism. In all three instances the causative factor apparently was necrosis from impaction of a calculus within the ureter. The clinical picture depends on the amount of extravasation, the virulence of the associated organisms, and the tissue reactions of the patient. Rapidly spreading infection may result or the process may become localized with or without abscess formation. One of the patients recovered entirely without operative intervention. As a rule, however, the condition will be frankly, perhaps imperatively, surgical.

Metaphen in Preoperative Disinfection of Skin.—Scott and Birkhaug made a comparative study of preoperative skin disinfectants which has shown that the alcohol-acetone-aqueous

0.5 per cent solution of metaphen is relatively free from the objectionable features of solutions of tincture of iodine and the alcohol-acetone-aqueous 2 per cent mercurochrome and that it fulfils under strictly controlled conditions the requirements of an efficient and nondeleterious preoperative skin disinfectant.

Archives of Surgery, Chicago

22: 179-352 (Feb.) 1931

*Diabetic Gangrene: Medical Treatment and Prophylaxis. H. F. Root, Boston.—p. 179.
*Explosions Occurring During Use of Ethylene. F. D. Johnston, Ann Arbor, Mich., and H. Cabot, Rochester, Minn.—p. 195.
*Volume of Blood Flow per Minute Through Lungs Following Collapse of One Lung by Occlusion of Bronchus. R. L. Moore, New York. —p. 225.
*Multiple Neurofibromatosis (von Recklinghausen's Disease): Malignant Transformation. K. Hosoi, Albany, N. Y.—p. 258.
*Congenital Deficiency of Pericardium: Function of Pericardium. C. S. Beck, Cleveland.—p. 282.
*Thoracoplasty in Pulmonary Tuberculosis: Fifty-Three Cases. B. N. Carter, Cincinnati.—p. 289.
*Actinomycosis of Abdomen. L. P. Good, Rochester, Minn.—p. 307.
*Trauma to Intestines: Importance of Local Loss of Fluid in Production of Low Blood Pressure. A. Blalock, Nashville, Tenn.—p. 314.
Forty-Third Report of Progress in Orthopedic Surgery. P. D. Wilson, L. T. Brown, M. N. Smith-Petersen, J. G. Kuhns and E. F. Cave, Boston; R. K. Ghormley, Rochester, Minn.; M. S. Danforth, Providence, R. I.; G. Perkins, London; A. Van Dessel, Louvain, Belgium, and C. H. Bucholz, Halle, Germany.—p. 325.

Diabetic Gangrene: Medical Treatment and Prophylaxis.—According to Root the immediate causes of gangrene are preventable. Of seven patients who had suffered amputations of legs or toes, three had cut corns without precautions. Clean hands and clean feet would have saved their legs. The fourth patient stepped on a nail and continued to work in spite of suppuration. The fifth and sixth had blisters produced by tight shoes. The seventh walked barefoot in zero weather, striking his toe without remembering any injury, so deficient in sensation or so slight was the trauma that resulted in gangrene. Defective vision resulting in too deep cutting of corns, improper shoes causing trauma from pressure, unprotected feet and neglect of minor infections are causes that may be combated by the education of patients and by careful but energetic treatment by physicians. The feet of diabetic persons are vulnerable because they are mechanically deformed. The feet of diabetic patients over 50 years of age are rarely free from obvious mechanical handicaps. Hammer toes and toes made stiff by arthritic changes cause abnormal points of pressure, with the formation of calluses; these can be kept free from infection only if they are given proper care. Bunions, with displacement of the great toes, not only produce abnormal points of pressure over the metacarpophalangeal joint but often cause soft corns on the inner aspect of the fourth toes and calluses on the lateral and under surfaces of the first toes, so that every bunion has at least three potentional points for infection. Flat anterior arches result in calluses over the heads of the metatarsals and the abnormal pressure is in most cases the chief predisposing factor in producing perforating ulcer of the sole. Deformities of the small toes due to long continued wearing of ill fitting shoes result in the formation of soft corns on the lateral surfaces of the toes at those points underlying the small phalangeal joints. When these soft corns become infected, involvement of the joints is almost certain if healing has not occurred within two weeks. Loss of flexibility of the ankle joint should not be forgotten as a factor in the production of a stiff foot and therefore as a cause of pressure calluses. The presence of chronic infections about the foot is of importance. Epidermophytosis is present in 70 per cent of diabetic patients; although not dangerous in itself, the lesions produced by this infection provide a portal of entry for a pyogenic organism with resultant osteomyelitis, lymphangitis or gangrene. The surfaces between the toes should always be examined for the dead white macerated skin or soft corns due to epidermophytosis. A large number of diabetic patients harbor mild infection in or about calluses or corns, which at times flares up and may give rise to lymphangitis or even gangrene. Finally, gangrene is precipitated by faulty care of vulnerable feet by patients infirm on account of age and handicapped by poor vision and defective sensation in the feet. A corn is cut and blood drawn when the feet or the hands are not clean. A blister is picked or a pressure sore is produced by the wearing of shoes with a torn lining or a new shoe before the stiffness has gone out of it. The skin of a diabetic person is delicate. One can break it by rubbing with a turkish towel too vigorously; if the broken area is not protected, a few days later the patient may have not only infection but gangrene. Shoes that are long enough and soft enough should be worn; also proper hose that are not too tight or so large that wrinkling will cause blisters or sores when worn. Medium weight stockings of wool and cotton should be worn and changed daily. Most important of all is the education of every diabetic patient in the care of his feet. No patient should leave the hospital without a demonstration of the proper care of the feet and instructions for use at home.

Explosions Occurring During Use of Ethylene.—Johnston and Cabot believe that the following recommendations will provide a safe and workable system for the prevention of explosions during the use of ethylene-oxygen or other anesthetic mixtures. General measures: 1. Enforcement of strict regulations prohibiting the use of electrical equipment or any obvious source of heat in the vicinity of the anesthetic equipment. 2. Adherence to the suggestions of McKesson for the technic of ethylene administration. Measures to prevent explosions due to static spark outside the machine. 1. Thin sheet metal (either copper, brass or rustless steel) flooring forming a continuous pathway from the anesthetic rooms across the hall into the operating rooms, where it should cover most of the floor space. Chains electrically connected to and suspended from the anesthetic machines and other movable equipment so as to drag on the metal floor. 3. Inspection of breathing tubes to make certain that the spiral conductor embedded therein projects into the lumen of the tube and that it is electrically joined to the metal pieces at the extremities of the hose. The breathing tubes should be covered by a coarse network of copper wire, which should likewise be soldered to its metal ends. Metal plates connected electrically to the metal floor should be placed on the outside of all doors leading into the operating rooms in such a way that one cannot open the door without touching the metal plate. 4. Connection between the patient and the metal frame of the operating table by means of a chain ending in a suitable piece of metal, which must rest against his skin. 5. Holes cut in the rubber mat on the carriage of the machines and insulating paint removed from the metal platform at these points, so that the tanks will be positively grounded to the frame of the apparatus. 6. Installation of a device, such as the one used by Salzer, to prevent the exhaust gases from being poured out into the operating rooms. Measures to prevent explosions due to static spark within the machines: 1. Trial of a small quantity of a radioactive substance within the rubber rebreathing bag; if the foregoing method does not absolutely prevent charges from accumulating on the bag, replacement of the bag with a manometric device described. 2. Inspection of the check valve admitting gases into the mixing chamber weekly to make sure that the valve and the valve seat are clean and dry. Tests: During the cold months of the year, an occasional test with a gold leaf electroscope to be assured that the system is actually eliminating the danger from static electricity.

Volume of Blood Flow Through Lungs Following Collapse of One Lung.—Moore recorded the respiratory movements and oxygen absorption curves of the right and left lungs separately in fourteen experiments on anesthetized dogs during the inhalation of oxygen. After total occlusion of one primary bronchus and complete collapse of the corresponding lung, similar tracings were taken of the opposite nonobstructed lung. Simultaneous estimations of the oxygen contents of the mixed venous, arterial and aerated blood specimens were made. The data obtained have been used to calculate cardiac output and fractions of blood passing through the pulmonary system of each lung separately, first under relatively normal conditions and, secondly, at varying intervals after bronchial occlusion and complete collapse of either lung. It was found that when breathing was free the amounts of oxygen absorbed by the right and left lungs, respectively, were approximately in the ratio of 3:2; under similar conditions, the fractions of blood that passed through the right and left lungs were in the same ratio; total occlusion of one primary bronchus was regularly followed by complete collapse of the corresponding lung. Complete collapse of one lung (either right or left) was accompanied by a conspicuous decrease in the pulmonary blood circulation on the

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affected side; the cardiac output and the circulation through the opposite lung decreased to a less extent in eleven of twelve instances; the percentage decrease of blood flow through the collapsed lung varied directly with the decrease in cardiac output. On the basis of these observations the conclusion is drawn that the reduced pulmonary blood flow in a lung that has been completely collapsed by bronchial occlusion results in part from local changes within the lung itself and in part from the accompanying decrease in cardiac output. Of the local conditions, absence of lung motion is probably of some importance.

Multiple Neurofibromatosis.—Hosoi reports two cases of von Recklinghausen's disease in one of which an edematous fibroma of the interior cervical and upper mediastinal regions became sarcomatous about one year after operative intervention. The microscopic picture indicated that the multiple neurofibromas originated from the perineurium. The literature on the subject of malignant transformation in multiple neurofibromatosis is reviewed.

Congenital Deficiency of Pericardium.—A case of deficiency of the pericardium is described by Beck. An analysis of the cases that have been reported shows that adhesions between the heart and the adjacent structures occur more frequently with this anomaly than when the pericardium is present. In no instance was the anomaly of the pericardium regarded as responsible for death or even as having exerted any significant influence on the heart or the circulation. The potential danger of bands of tissue adherent to the heart, however, should not be overlooked. There is no evidence to indicate that the pericardium exerts a beneficial effect on the acutely dilating heart. In pathologic conditions in which a positive intrapericardial pressure occurs or in which cardiopericardial adhesions develop, the presence of the pericardium may constitute a grave danger to the mechanics of the circulation. In the therapy for these conditions, surgery has much to offer.

Thoracoplasty in Pulmonary Tuberculosis.—In a series of nine cases of death following thoracoplasty for pulmonary tuberculosis observed by Carter, the fatal outcome was due to the operation in three, and in six it occurred some time afterward. Of the six patients who survived the operation and died later, two were extremely desperate risks and probably should never have been subjected to operation; two died of generalized tuberculosis and two died from extension of the disease to the good lung. Of the three whose deaths may be attributed to operation, one died of mediastinal flutter, one from transfusion and infected wound, and one of undetermined causes.

Actinomycosis of Abdomen.—Good states that the early symptoms of actinomycosis of the abdomen are those usually associated with acute appendicitis. Later, the disease is characterized by multiple abscesses and persistent sinuses, about which the tissue is leathery and brawny. The treatment consists in free drainage, the administration of potassium iodide, upbuilding of the general health and proper treatment by roentgen ray and radium. The course of the disease is usually chronic and the ultimate result is poor.

Trauma to Intestines.—The effects of trauma to the intestines have been studied by Blalock in twelve dogs. The loss of fluid from the body and into the traumatized area of the intestines has been determined. This loss in eight of the twelve experiments amounted to more than 4 per cent of the body weight. The average loss in all experiments was 4.48 per cent of the body weight. Red blood cells constituted only a small part of the fluid that escaped from the peritoneum covering the intestines. Reasons are given for the belief that the loss of fluids from and into the traumatized area was the chief if not the sole cause for the reduction in the blood pressure.

Journal of Experimental Medicine, Baltimore

53: 151-297 (Feb.) 1931

*Mouse Protection Tests for Antibody in Pneumococcus Pneumonia. F. T. Lord and E. L. Persons, Boston.—p. 151.
*Accelerated Febrile Reaction in Monkeys on Reinoculation with Poliomyelitis Virus. C. W. Jungeblut, New York.—p. 159.
*Inflammation: Mechanism of Fixation by Inflammatory Reaction. V. Menkin, Philadelphia.—p. 171.
*Id.: Fixation of Trypan Blue in Inflamed Areas of Frogs. V. Menkin, Philadelphia.—p. 179.
*Immunization Against Vaccinia by Noninfective Mixtures of Virus and Immune Serum. C. P. Rhoads, Springfield, Mass.—p. 185.
Gradient of Vascular Permeability: Conditions in Frog and Chicken Muscle and in Mammalian Diaphragm. F. Smith and P. Rous, New York.—p. 195.
Id.: Gradient Along Capillaries and Venules of Frog Skin. P. Rous and F. Smith, New York.—p. 219.
Observations with New Transmissible Strain of Leukosis (Leukemia) of Fowls. J. Furth, Philadelphia.—p. 243.
Transmission Experiments with Leukosis of Fowls. E. L. Stubbs and J. Furth, Philadelphia.—p. 269.
Histologic Studies on Hog Cholera: Lesions in Central Nervous System. O. Seifried, Princeton, N. J.—p. 277.
*Hemorrhagic Diathesis in Experimental Scurvy. G. Dalldorf, Valhalla.—p. 289.

Mouse Protection Tests for Antibody in Pneumococcus Pneumonia.—Lord and Persons state that though in general in pneumococcus pneumonia the appearance of protective substance coincides rather sharply with the fall in the temperature, antibody may appear spontaneously in the blood serum as early as the third or fourth day and crises and recovery may be delayed until the sixth to the tenth day. Recovery at times occurs without demonstrable protective substance in the blood in patients who later develop protection. The amount of antibody developed in the course of pneumococcus pneumonia is small and in the majority of cases tested was insufficient to protect against more than 100 lethal doses of homologous pneumococci and never against more than 10,000 lethal doses. Treatment with Felton's antibody late in the course of the disease materially increases the amount of protective substances in the blood. After the third day, doses of more than 200,000 Felton units are usually necessary to produce a greater degree of protection than might otherwise be expected. The formation of protective substances by the patient himself is not an assurance against progress of the infection to a fatal termination. Protective substance in the blood and pneumococcic septicemia may occur simultaneously.

Reaction in Monkeys on Reinoculation with Poliomyelitis Virus.—According to Jungeblut, primary poliomyelitic infection in the monkey, as a rule, is characterized by no significant increase in the body temperature during the incubation period until forty-eight or twenty-four hours before the onset of clinical symptoms, when a critical rise of the temperature occurs. The temperature curve of recovered monkeys on intracerebral reinoculation shows an almost immediate and marked febrile reaction during the first twenty-four or forty-eight hours after inoculation. A similar accelerated febrile reaction may be obtained in recovered animals after subcutaneous injection of killed virus. In case the previous infection is of very recent date, reinoculation may lead to no demonstrable reaction whatever. Monkeys that have received a number of parenteral injections of live virus respond to intracerebral infection with a precocious and prolonged febrile reaction on the third or fourth day after infection, which may last until the onset of symptoms. The altered response to reinoculation of monkeys that have previously been in contact with the virus suggests a close analogy with the accelerated reactions observed in allergic phenomena.

Mechanism of Fixation by Inflammatory Reaction.—Microscopic studies made by Menkin show the presence of a network of fibrin within the tissues and numerous thrombosed lymphatics at the site of inflammation. Precipitated iron compounds, possibly coagulated horse serum, or particulate matter caught in this fibrinous reticulum will disseminate less readily than trypan blue from the site of inflammation. Trypan blue injected at the periphery of an inflamed area fails to enter the site of inflammation. This failure of penetration is caused by the occlusion of lymphatic vessels and by the presence of a fine network of fibrin in the tissue spaces of the inflamed area. Fixation of foreign substances by the inflammatory reaction is therefore primarily due to mechanical obstruction caused by a network of fibrin and by thrombosed lymphatics at the site of inflammation. There is another phase of the problem that still requires more accurate information. This concerns the relation between exudation from blood vessels and changes in flow of lymph from the inflamed area. Further experiments are being conducted to investigate this question. The reaction of fixation, occurs extremely early in the inflammatory process, circumscribes the irritating substance and allows a definite period of time for the leukocytes to assemble for the purpose of phagocytosis. It is through a delicate regulating mechanism of this

kind that the vital organs are protected at the expense of local injury.

Fixation of Trypan Blue in Inflamed Areas of Frogs.—Trypan blue injected by Menkin into the circulating blood stream of frogs accumulated rapidly in an inflamed area. When trypan blue is injected directly into the area of inflammation, it is fixed in situ and fails to diffuse outward. If the dye is injected at the periphery of an inflamed area, it fails to enter the site of inflammation. This failure of penetration is caused by the occlusion of lymphatic vessels and the presence of a network of fibrin in the inflamed area. These experiments furnish additional evidence that fixation of foreign substances by the inflammatory reaction is due to mechanical obstruction caused by a network of fibrin and by thrombosed lymphatics at the site of inflammation.

Immunization Against Vaccinia.—Rhoads asserts that vaccine virus and specific immune serum mixed in such proportions as not to produce a lesion when inoculated intradermally induce immunity when instilled into the nasal cavities of rabbits. The mixture is also effective when inoculated subcutaneously. Immunity is brought about with a minimum of systemic reaction and no local one. When the mixtures are incompletely neutralized, generalized vaccinia results.

Hemorrhagic Diathesis in Experimental Scurvy.—The degree of scorbutic change in the vessels of animals with experimental scurvy was roughly measured by Dalldorf by establishing the amount of negative pressure required to produce petechial hemorrhages in the skin. The test shows that the hemorrhagic diathesis in experimental scurvy develops earlier than any other known sign of the disease and that it persists in some degree throughout. The response of the blood vessels to the administration of antiscorbutic substances is extremely rapid, as shown by the test, but it varies with the amount of antiscorbutic given and its method of administration. The changes in the resistance of the vessels follows a curve that rises toward recovery during the end of the first week on a scorbutic diet, reaches a peak in the second week and then falls steadily during the remainder of the course of the disease. This indicates that the course of the disease is not constant and progressive. The test may have clinical value in the diagnosis of scurvy.

Journal of Nervous & Mental Disease, New York

73: 129-240 (Feb.) 1931

Clinicopathologic Study of Intracranial Arachnoid Membrane. L. Davis and H. A. Haven, Chicago.—p. 129.
Are Neurology and Psychiatry Separate Medical Entities? V. C. Branham and R. B. McGraw, New York.—p. 144.
Psychoanalytic Conception of Depersonalization. S. Morgenstern, Paris.—p. 164.
*Involvement of Nervous System Following Extraction of Teeth. W. Bailey, Philadelphia.—p. 180.
*Results of Experiment in Applying Methenamine in Some Cases of Alcoholic Psychosis. L. M. Katzman, Moscow.—p. 183.

Involvement of Nervous System Following Extraction of Teeth.—Bailey reports the case of a woman, aged 66, who was said by her daughter to have been perfectly well until February, 1929. At that time she had six teeth extracted. One week later she had six more teeth extracted and finally, several days later, she had the remaining seven removed. On that day when she came home she had difficulty in speaking and moving the jaws and after about two more days she became speechless and developed difficulty in swallowing. This condition had persisted until April, 1930, without any marked change in symptoms. The patient was able to understand conversation perfectly and seemed of normal intelligence. She complained of severe pain on both sides of the face, especially on the right. She also complained of severe headache. A physician at that time made the following report: "The patient is unable to pucker her lips, and blows out a lighted match with great difficulty. She shows no weakness on closure of the eyelids on each side. The tongue can be protruded slightly but not beyond the lips. It shows marked atrophy along the edges, and fibrillary tremors are distinct. The soft palate is innervated imperfectly. The patient is entirely speechless and at most can make only a few unintelligible noises. Her understanding of speech is apparently normal. When a glass of water is given to her she takes a little into her mouth and swallows it with great difficulty, while a great deal of the water escapes and leaks out over her lower lip. The contraction of the masseter muscles is feeble." This case seems to be the only one in which a bulbar palsy has followed the extraction of teeth.

Alcoholic Psychosis Treated with Methenamine.—Katzman found that, after treatment by methenamine of cases of psychosis resulting from alcohol drinking, the consciousness again became clear; fixed hallucinations and fixed delusions disappeared, violent headaches stopped; the extreme irritability, melancholy and disturbance of sleep and appetite disappeared; the patients were in a happy mood; tremor left them. In one case of hallucination idiocy, resulting from alcoholism, a regeneration of the stereognosis was noticed of the feeling of muscles and joints and an improvement of speech and sensibility. As regards the intellect, attention improved as did the faculty to reckon, the memory and the faculty of judgment-formation. Apathy and lassitude disappeared; the patients were again critical in their attitude. All the pathologic phenomena mentioned lasted mostly for a long period (from five to ten years) and did not disappear during the period of abstinence (from two weeks to two and one-half months after the patient's stay at the colony and, according to the statement of these patients, even after six months and more). The ability to work was restored in all the cases under observation. From the results of cures of alcoholic psychosis by methenamine it may be assumed that the pathologic picture of this psychosis is to a certain degree of a functional nature.

Michigan State M. Society Journal, Grand Rapids

30: 61-122 (Feb.) 1931

Gonin Operation for Detachment of Retina. W. R. Parker, Detroit.—p. 61.
*Thyroidism. M. Ballin, Detroit.—p. 64.
Iodized Oil in Diagnosis of Maxillary Sinus Disease. E. L. Whitney and H. P. Doub, Detroit.—p. 72.
Intestinal Anemaly Revealed by Emergency Operation Following Motor Accident. I. D. McCoy, Cass City.—p. 77.
Blood Transfusion: Fatal Reaction. F. J. Barkman, Calumet.—p. 83.
Undulant Fever. W. M. Le Fevre, Muskegon.—p. 87.
*Puerperal Inversion of Uterus. L. F. Bates, Durand.—p. 88.
Bacteriophage Treatment of Staphylococcus Infections. N. W. Larkum, Lansing, and H. Pratt, Ann Arbor.—p. 90.
Urogenital Tuberculosis: Modified Vernes Test as Aid in Diagnosis. G. Sewell, Detroit.—p. 92.
Intravenous Sodium Amytal: Death. P. D. Amadon, Monroe.—p. 96.

Thyroidism.—Ballin asserts that small goiters hardly visible or palpable may cause serious symptoms. Low basal metabolic readings do not rule out a goiter as responsible for a pathologic condition. Intestinal disorders, cardiac decompensation, anginalike attacks, a cough, hoarseness, arthritis, asthmatic conditions, nervous disorders, not fitting in the usual picture of such conditions, may mask a thyroidism. High blood pressure, especially the paroxysmal type, or the asthenic forms of thyroidism, point to a complicating suprarenalism (cortical or medullary), in addition to thyroidism.

Puerperal Inversion of Uterus.—Bates gives the predisposing causes of inversion of the uterus as uterine inertia, pressure from above, and traction on the cord from below. Shock is the leading symptom and, when this occurs after the third stage of labor, uterine inversion should be borne in mind. In the presence of marked shock or obvious sepsis, expectant treatment should be followed. In the absence of shock or sepsis, immediate reduction should be attempted. Manipulation should be manual and all manipulations performed with utmost care to lessen the danger of tearing the uterine wall, thus increasing the danger from hemorrhage and sepsis.

Military Surgeon, Washington, D. C.

68: 153-304 (Feb.) 1931

*Pitkin's Controllable Spinal Anesthesia. J. F. Gallagher.—p. 153.
International Hygiene Exhibition, Dresden, Germany. G. C. Dunham.—p. 169.
Deformity Due to Yaws. W. S. Sargent.—p. 179.
Military Medicolegal Psychiatry. I. Psychopathic Personalities and Pathologic Lying. T. A. Williams.—p. 183.
*Two Cases of Chronic Diverticulitis of Colon with Medical Treatments. C. W. Shaffer and D. S. Kellogg.—p. 195.
Development of Philippine Health Service. G. F. Lull.—p. 204.
*Traumatic Rupture of Diaphragm: Case Report. E. E. Alling.—p. 211.
Routine Bacteriologic Examination of Milk by Direct Microscopy. J. W. Smith, Jr.—p. 214.
Medical Reserve Officers' Inactive Training Unit at Mayo Foundation, Rochester, Minn.—p. 216.

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Pitkin's Controllable Spinal Anesthesia.—Gallagher states that, while spinal anesthesia is in no sense a substitute for general anesthesia, nevertheless, even with its limitations it has many advantages over all other forms. Many operations may be performed under spinal anesthesia which would not be undertaken with a general anesthetic and when careful attention is paid to all the details of technic before, during and after operation, it is a safe anesthetic—otherwise it is not. Pitkin's method has justified itself in safety, controllability and ease of administration.

Chronic Diverticulitis of Colon with Medical Treatments.—Shaffer and Kellogg emphasize the importance of a complete roentgen examination including the barium sulphate enema, in all cases of long continued, indefinite abdominal pain. This is especially true in view of the fact that in these cases of chronic diverticulitis there is a tendency to obesity and general appearance of good health rather than loss of weight. Medical treatment, particularly the use of belladonna and either bismuth or barium compounds, should be given a thorough trial before a major operation is advised, except in cases in which there are definite signs of acute obstruction. It should be noted that patients with chronic diverticulitis easily become depressed, and every effort should be made to promote an optimistic outlook toward their condition. In every case of chronic diverticulitis the possibility of carcinoma must be considered. Conversely, no case of suspected inoperable carcinoma should be so diagnosed without first thoroughly considering and eliminating the possibility of chronic diverticulitis.

Traumatic Rupture of Diaphragm.—This case is reported by Alling as an additional one diagnosed before death and representing all but one of the signs found by Gibson. This sign, adventitious sounds in the thorax, was probably present before the stomach became so completely dilated. One other sign may be mentioned of importance: pain in the left shoulder, this being present only after the heart was pushed to the right and probably the result of the strain on the great vessels.

Missouri State Medical Assn. Journal, St. Louis

28: 41-98 (Feb.) 1931

Fractures Involving Elbow. M. L. Klinefelter, St. Louis.—p. 41.
Modern Conception and Plan of Anesthesia. W. Bartlett and W. Bartlett, Jr., St. Louis.—p. 43.
Gynecology of Puerperium. M. A. Hanna, Kansas City.—p. 48.
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Sedimentation Test in Pelvic Disorders. F. B. Kyger, Kansas City.—p. 61.
Uterine Hemorrhage. C. D. O'Keefe, St. Louis.—p. 64.
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Early Phases of Gallbladder Disease. R. D. Irland, Kansas City.—p. 73.
Costly Delays in Abdominal Conditions. W. Smith, Springfield.—p. 75.

Nebraska State Medical Journal, Norfolk

16: 41-84 (Feb.) 1931

Why is Mortality of Appendicitis Increasing? B. B. Davis, Omaha.—p. 41.
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New Jersey Medical Society Journal, Orange

27: 923-1042 (Dec.) 1930

Egyptian Medicine. S. A. Cosgrove, Jersey City.—p. 923.
Scarlatinal Streptococcic Septicemia with Recovery. T. C. Merril and J. M. Le Mee, Paris, France.—p. 927.
Successful Treatment of Gangrene, with Especial Reference to Diabetic Type by Medical Diathermy. S. Barbash, Atlantic City.—p. 933.
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Brucella Abortus Infection ("Undulant Fever"). C. A. Pons, W. Gosling and H. Barker, Spring Lake, N. J.—p. 965.
Septic Abortion, Undulant Fever and Raw Milk. E. G. Wherry, Newark.—p. 969.
Serology of Congenital Syphilis. R. A. Kilduffe, Atlantic City.—p. 973.
Nutritional Edema Associated with Severe Anemia. J. H. Marcus, Atlantic City.—p. 978.
Study of Venereal Disease Prevalence in East Orange, as of December 10, 1929. F. J. Osborne, East Orange.—p. 982.

New Orleans Medical and Surgical Journal

83: 507-586 (Feb.) 1931

Physical Diagnosis of Rheumatic Heart Disease in Children. H. McCulloch, St. Louis.—p. 507.
*Puzzling Types of Indigestion. W. C. Alvarez, Rochester, Minn.—p. 515.
Relation of General Practitioner to Public Health Program. F. J. Underwood, Jackson, Miss.—p. 529.
Hookworm Infestation in Mississippi. C. A. Palmerlee, Jackson, Miss.—p. 534.
*Cisterna Puncture as Aid in Diagnosis of, and in Treatment of, Intracranial Hemorrhage of New-Born. Maud Loeber, New Orleans.—p. 536.
Choice of Anesthetic with Special Reference to Spinal Anesthesia. O. C. Cassegrain, New Orleans.—p. 539.
General Consideration of Treatment of Syphilis. C. M. Speck, New Albany, Miss.—p. 549.
Physical Agents in Treatment of Gynecological Conditions. F. H. Walke, Shreveport, La.—p. 553.
Beriberi: Medical and Economic Interest and Specific Treatment. A. B. Pavy, Opelousa, La.—p. 559.

Puzzling Types of Indigestion.—Alvarez presents an analysis of the diagnoses made in 500 cases of indigestion or abdominal discomfort. The study was made with the idea of mapping out the areas in which clinical research is most needed. In 175, or 1 out of 3, there was organic disease of the digestive tract. In 52 cases the cause for the symptoms was found in organic disease outside the digestive tract. In 95 cases the patients were congenitally handicapped or nervous and the symptoms seemed obviously to be functional in origin. The most puzzling group was made up of 115 cases in which the symptoms were so severe as to suggest the presence of organic disease. The syndrome often resembled that of cholecystitis, but irequently it suggested the presence of ulcer or appendicitis. Cholecystitis was the most common single cause for severe indigestion. Organic disease of the stomach was rare; it was found in only twelve cases. Among the subjects considered in the paper are the significance of infestation with intestinal parasites, chronic enlargement of the mesenteric lymph nodes, inflammation of the anal ring, mild recurrence of septicemia, spondylitis, pelvic diseases of women, migraine, mucous colitis, nervous vomiting, intestinal allergy, constipation and diarrhea.

Cisterna Puncture in Diagnosis and Treatment of Intracranial Hemorrhage of the New-Born. — Loeber describes the technic of cisterna puncture in infants and states that she believes the cisterna route for the obtaining of fluid for diagnostic and therapeutic measures in intracranial hemorrhage is the route of choice both because of the ease of access and because of the posture assumed by the baby during the procedure, which does not tend to exaggerate the already existing trauma and symptoms.

New York State Journal of Medicine, New York

31: 131-194 (Feb. 1) 1931

Pulmonary Complications in Surgery of Handicapped Patient. E. W. Phillips, Rochester.—p. 131.
Id.: Choice of Anesthetic. W. J. M. Scott, Rochester.—p. 135.
Postpartum Hemorrhage. W. S. Smith, Brooklyn.—p. 141.

Public Health Reports, Washington, D. C.

46: 207-267 (Jan. 30) 1931

*Stillbirth Problem in United States. E. B. Sterling.—p. 207.

Stillbirth Problem in United States.—Sterling asserts that in the United States the stillbirth problem is one of greater magnitude than that of neonatal death. While the decline in the neonatal death rate is slight, the stillbirth rate apparently shows no decline at all, the curve being practically a straight line. What effect, if any, more complete reporting of stillbirths would have on this curve cannot be estimated. Most prominent among the known causes of stillbirths are the complications of labor, syphilis, and the toxemias of pregnancy. In the seven-year period from 1922 to 1928 the stillbirths from the toxemias of pregnancy have risen slightly, those from the complications of labor have fallen only slightly, and those from syphilis do not appear to have changed significantly.

Surgery, Gynecology and Obstetrics, Chicago

52: 129-272 (Feb.) 1931

*Experiences with Cerebellar Astrocytomas: Seventy-Six Cases. H. Cushing, Boston.—p. 129.
Etiologic Rôle of Gas Forming Bacilli in Experimental Bile Peritonitis. A. G. Rewbridge, Chicago.—p. 205.
*Transplantation of Ureters to Sigmoid: Experimental Study in Dogs. I. R. Sisk, J. B. Wear and H. A. O'Brien, Madison.—p. 212.
*Etiology of Hyperplasia of Endometrium. J. Hofbauer, Baltimore.—p. 222.
*Follicular Destruction in Normal Thyroid of Dog: Relation Between Follicles and Interfollicular Cells. G. Zechel, Chicago.—p. 228.
Vaginal Extirpation of Uterus and Adnexa on Both Sides. P. Werner, Vienna, Austria.—p. 233.
Technic of Thyroidectomy. M. L. Parker, Chicago.—p. 238.
Physiologic Reconstruction of Thumb After Total Loss. S. Bunnell, San Francisco.—p. 245.
*Carcinoma of Cervix. M. K. Bartlett and G. V. Smith, Boston.—p. 249.
Preoperative Determination of Best Functional Position for an Ankylosed Hip. A. O. Adams, Spokane, Wash.—p. 261.

Experiences with Cerebellar Astrocytomas. — Cushing states that the cerebellar astrocytomas furnish another example of gliomatous tumors, which, like the medulloblastomas, show predilection for a favorite site and produce a recognizable syndrome. The tumors are probably of congenital origin and usually date symptomatically from childhood, the average age on admission being 13 years. They are signalized by periodic matutinal headache and vomiting. Owing to their midcerebellar situation, the tumors inevitably cause secondary hydrocephalus and this, in turn, leads to a choked disk, which may be so insidious in origin that seriously impaired vision may be the first recorded symptom. They may attain a surprisingly large size before any cerebellar signs, usually shown as instability, put in an appearance. The tumors may be either compact growths or largely cystic. When predominantly cystic, recurrence of symptoms is inevitable unless the mural nodule of tumor is identified and removed at the time of operation. To establish this apparently simple fact has required years of observation of cystic lesions variously treated. The clinical diagnosis lies between astrocytoma and other forms of tumor that frequent the same region, medulloblastoma, angioblastoma and ependymoma, of which the astrocytomas are the most numerous. The growth is composed of fibrillary and protoplasmic astrocytes in varying proportions and is therefore a mixed tumor, being firm or soft in texture in accordance with the predominating type of cell. An immediate diagnosis of the cytologic characteristics of the lesion can be determined in case of doubt by the use of the supravital technic. The tumors may lie exposed on the surface or be wholly concealed; and when so concealed, a vertical incision through the vermis is the proper method of bringing them to view. The operation, which can usually be carried out under local anesthesia, should if possible be completed at the first session, a complete eradication of the growth at a second session being far more hazardous. An 18 per cent case mortality for the series of seventy-six cases is largely ascribable to inexperience and to fatalities from secondary operations. With better understanding of the nature and favored site of the lesions in the last twenty-five consecutive operations there has been a case mortality of only 4 per cent in spite of the prolonged and radical operations now undertaken by modern methods with attempted cure at a single session.

Transplantation of Ureters to Sigmoid.—In the experience of Sisk et al. the transplantation of the ureters to the sigmoid in dogs was highly unsatisfactory by the Mayo technic. In every case the kidney became infected and closure of the ureterosigmoidal opening by the mucosa of the bowel occurred in five of the seven unilateral transplants. In the two bilateral transplants, the ureteral openings were markedly stenosed. The completed Coffey technic gave slightly better results. Of the eight dogs, four showed bilateral infection, three showed infection in only one side, and one showed no evidence of infection but was hydronephrotic on one side. Complete closure of the ureteral opening occurred in only one ureter. The unilateral Coffey operations revealed kidneys in which there was no microscopic evidence of pyogenic infection, yet the dogs never appeared well after operation. Believing that the kidneys became infected by means other than the lumen of the ureter, the authors obtained infected kidneys in two cases in which the ureters were still completely obstructed at necropsy. The lymphatics must be given serious consideration as a means of transmitting infection to the kidneys. A clinical case showed the infection to begin while the catheters were still in the lumen of the ureters. Solution of the problem of preventing ascending renal infection probably depends on the discovery of means to prevent infection through the lymphatics. Partial success in this direction was obtained in cases in which an attempt was made to protect the exposed end of the ureter for a time from infected material. These results suggest that a new technic for transplantation with this principle in view might lessen the tendency to renal infection. Until a uniformly successful procedure is evolved, it would seem the better surgical judgment to use ureteral transplantation only in those cases in which older and better understood methods are impossible.

Etiology of Hyperplasia of Endometrium. — Investigations made by Hofbauer have shown that in guinea-pigs treated parenterally with derivatives of the anterior lobe of the pituitary body, conditions may be produced in the uterine mucosa, as well as in the ovaries, which are practically identical with those observed in endometrial hyperplasia in women. This obtained so long as the ovaries were preserved, but when they had been removed, the process was limited to the basal portion of the endometrium. The observations suggest the view that hyperplasia may reasonably be regarded as the manifestation of an overactivity of the anterior lobe of the pituitary body. This conclusion that an outside factor represents the primary cause of the disease is corroborated by the clinical experience that the condition commonly recurs after repeated curettage.

Follicular Destruction in Normal Thyroid of Dog.—From the observations of Zechel there is evidence to assume that during the life cycle of the thyroid a cell may appear and reappear in successive follicles, for new follicles are formed from the cellular components of disintegrated follicles. It may be supposed further that a cell is able to produce colloid but for a limited period and then requires a period of inactivity to prepare itself for a renewal of secretory function in company with its fellows (the interfollicular cells) which together initiate a new follicle. The regression of follicles seems to facilitate the resorption of colloid. The disintegration of their walls permits the colloid easily to escape and to appear among the surrounding cells. Here too such material finally disappears. If these interpretations of the observed conditions are correct, then a new basis is given for the understanding of the pathology of the thyroid. It is conceivable how differences in such pathology may result from the unbalance or overemphasis of any one phase in the follicular life cycle of the thyroid.

Carcinoma of Cervix.—Six hundred and seventy-three cases of carcinoma of the cervix have been studied by Bartlett and Smith. Methods of radium application as used by them are described and illustrated. Preliminary curettage and cauterization, to remove excess malignant tissue, are practiced when necessary and are not detrimental to the postoperative progress of the patient. Of 588 patients on whom a family history was available, 10.4 per cent gave a history of malignant disease. In this series, 10.7 per cent of the patients gave a history of no pregnancy. An additional 4.9 per cent gave a history of abortions or miscarriages but no full term pregnancy. Twenty-seven patients had had previous supravaginal hysterectomy. Of these, 29.6 per cent probably had cancer at the time hysterectomy was performed. Careful biopsy at that time might have revealed the presence of the disease and led to earlier treatment of the carcinoma. Routine microscopic examination of curettings and trachelorrhaphy specimens has led to the detection of sixteen early cases of carcinoma of the cervix, grossly unsuspected. Approximately 1,700 cervices were cauterized. Not one of these patients is known to have developed cervical carcinoma. Deep radial cauterization with the actual cautery is practiced and is fairly sure prophylaxis against malignancy. The incidence of squamous carcinoma exceeded that of adenocarcinoma by a ratio of 7.5 to 1. Pyometra was encountered as a complication in nineteen cases. In only two of these, however, was the pyometra secondary to radium therapy with subsequent stenosis of the cervix. This is an incidence of only 0.69 per cent in cases treated by radium. The operative mortality for complete hysterectomy was 11.2 per cent. Calculations for the years 1902 to 1930 gave an operative mortality of 6.5 per cent. No operative deaths occurred following the

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application of radium, although usually done under ether anesthesia. The results of the various types of treatment are presented with a correlation of the stage of the disease and the postoperative survival. Contrary to the usual expectation, the results from complete hysterectomy were rather better than those from irradiation, in this series. Late recurrences, as encountered in these patients, seemed more prone to occur after hysterectomy than following radium therapy.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

18: 353-540 (Jan.) 1931

*Intervertebral Disks. N. R. Smith.—p. 358.
*Mechanism of Deep Tenderness in Gastric and Duodenal Ulcer. J. Morley and E. W. Twining.—p. 376.
Acute Osteomyelitis of Spine. H. W. Carson.—p. 400.
Osteitis Fibrosa: Hyaline Cartilage. E. D. Telford.—p. 409.
Adamantinoma of Tibia. A. H. Baker and L. M. Hawksley.—p. 415.
*Colloid Adenocarcinomas of Bladder Vault Arising from Epithelium of Urachal Canal: Tumors of Urachus. R. C. Begg.—p. 422.
*High Intestinal Obstruction: Administration of Saline and Other Substances by Enterostomy Below Site of Obstruction. J. C. Armour, T. G. Brown, D. M. Dunlop, T. C. Mitchell, H. H. Searls and C. P. Stewart.—p. 467.
Vicary's Predecessors. G. E. Gask.—p. 479.
*Treatment of Gliomas and Pituitary Tumors with Radium. P. Sargent and S. Cade.—p. 501.
Cyst of Ileum. R. Y. Aitken.—p. 521.
Retroperitoneal Cysts: Case of Large Retroperitoneal Lymphangioma. G. D. F. McFadden.—p. 523.
Chronic Subluxation of Distal Radio-Ulnar Articulation. J. A. Berry.—p. 526.
Two Unusual Cases of Strangulated Hernia. A. Fowler.—p. 528.

Intervertebral Disks.—According to Smith the lesions of the disks that have up till now been described are fibrous, cartilaginous, calcareous, bony, fatty, necrotic and liquefactive changes. A special form that has been noted roentgenologically is calcification of the center of the disk, to which the term "calcinosis intervertebralis" has been applied. Inflammatory lesions have been observed in influenza and typhoid. Inflammatory lesions are thought to be secondary to disease of the spongiosa of the corpus vertebrae. In osteochondritis of the spine the disks are affected as well as the vertebrae. A relationship appears to exist between pathologic conditions of the disk and other diseases—notably arteriosclerosis, osteoporosis, osteochondritis and chronic rheumatic arthritis. There seems also to be some reciprocal adaptability between the disks and the vertebrae when either are diseased. The usual progressive loss of suppleness of the body after the age of 30 years is due in great part to the increased density and diminished resilience of the intervertebral disks. In a proportion of cases back pain and stiffness, usually attributed to rheumatic changes in other tissues of the back, are due to diseases of the disks. The symptoms in ostearthritis and other chronic conditions of the spine are often due in part to changes in the disks. The disks when healthy accentuate the effects of rarefying lesions of the vertebral bodies. Diagnosis of lesions of the intervertebral disks depends on roentgen examination. A lateral view with the axis of the spine parallel to the surface of the film is essential, as well as an anteroposterior view. Thinning and flattening, diminished transparency, peripheral or central calcification, obliteration by ossification, or abnormal biconvexity may be observed.

Deep Tenderness in Peptic Ulcer.—Morley and Twining discuss the theories hitherto accepted as to the mechanism of deep tenderness associated with gastric and duodenal ulcers. An investigation of twenty-five patients with chronic ulcer associated with localized deep tenderness showed that the area of deep tenderness on the anterior abdominal wall corresponded generally with the ulcer crater and shifted its position with the ulcer. These observations are quite incompatible with Mackenzie's theory of a viscerosensory reflex. A case is recorded proving that the stomach, when ulcerated and exposed to direct pressure by an incision under local anesthesia, is insensitive to pressure. Deep tenderness is explained as due to stimulation of the sensitive parietal peritoneum by contact with the inflamed area of stomach or duodenum at the site of the ulcer, and radiation from the nerves of the parietal peritoneum to the more superficial branches of the same sensory cerebrospinal nerves.

Colloid Adenocarcinomas of Bladder Vault from Epithelium of Urachal Canal.—Begg states that, on theoretical grounds, colloid adenocarcinomas resembling rectal growths may arise in the muscular wall of the upper part of the bladder. There is definite evidence, both postmortem and clinical, that such growths do occur as primary tumors, and that the general tendency is for neoplasm in this region to assume the form of colloid cancer. Primitive cells of the urachus are always present in the muscular wall at the apex of the bladder. While these are totipotent, their bias is to form tumors of the intestinal type. Such neoplasms have, however, certain distinguishing features of their own. Adenomatous and cystic formations of various kinds are commonly found in connection with the lower end of the urachus, and the connection between these and the colloid cancers can be followed through all the stages. All tumors of the bladder apex must be assumed to be of urachal origin from the point of view of treatment unless the contrary is proved. The treatment is by radical operation, removing the umbilicus and all the tissues between it and the bladder, as well as a large portion of the latter.

High Intestinal Obstruction.—On the basis of experiments that they performed on dogs, Armour et al. conclude that death in untreated cases of high intestinal obstruction is preceded by the progressive development of severe alkalosis, by gross lowering of the blood chloride and, at the last, by an increase in the blood urea. For some days before death the urine is chloride free and the stomach contents contain no free hydrochloric acid, though their total chloride content is normal. It is immaterial whether the bile and pancreatic juice enter the intestine above or below the obstruction. The time of survival is greater, the lower the obstruction. Administration of both chloride and water below the obstruction causes the blood, urine and stomach contents to remain normal on chemical examination and also greatly prolongs life. Death ensues only after some four weeks and cannot be attributed directly to the obstruction. With peptone and carbohydrate added to the chloride and water, life can be prolonged for seven weeks or more. Withdrawal of chloride then brings about death, with the usual clinical and chemical symptoms. The occurrence of *Clostridium aerogenes-capsulatum* in the stomach contents is the same in treated and untreated animals. It is concluded that death is due not to toxemia but to the chemical changes following on loss of chloride and water, and is prevented by their supply. Treatment, therefore, consists in supplying chloride and water until continuity of the alimentary canal has been reestablished. There is no evidence that excessive breakdown of tissue protein is an essential accompaniment of high intestinal obstruction.

Treatment of Gliomas and Pituitary Tumors with Radium.—Sargent and Cade assert that a certain percentage of patients with gliomas and pituitary tumors appear to benefit from radium therapy. Although some cases are completely radium resistant and do not respond to treatment, others respond rapidly both in general health and in functional recovery. The best results are obtained in astrocytoma and medulloblastoma. It is difficult to assess the value of radium treatment in oligodendrogliomas, as these tumors do well with surgical removal alone and the the end-results are not yet available. Spongioblastomas form the most interesting group. Clinically the most malignant, their response to irradiation is variable, some cases having proved successful, others complete failures; but in this group, more than in any other, postoperative surface irradiation appears indicated, as the survival rate without radium is as a rule less than one year, while with radium complete regression of symptoms has been obtained in a few cases. The effect of radium on normal brain tissue need not be feared, provided the dose given is within therapeutic range and the amount of screenage is adequate. Interstitial irradiation has a greatly limited field of usefulness. The effect on the cerebral vascular system, both immediate and remote, must be kept in mind in planning the details of treatment. Surface irradiation is at present the most useful form of treatment by radium and is of wide application. Maximum dosage over prolonged periods of time appears to be the optimum. The effect of irradiation on the function of the choroid plexuses may prove of practical value and deserves further study. Decompression is essential. The possibility of combining roentgen therapy with radium treatment offers a new field of investigation.

British Medical Journal, London

1: 207-252 (Feb. 7) 1931

Quantitative Management of Contraction for "Lowest Level" Coordination. C. Sherrington.—p. 207.
*Fracture of Skull in Childhood. J. T. Morrison and M. Roskin.—p. 212.
*Method for Deciding Pneumococcal "Type." R. R. Armstrong.—p. 214.
*Enigma of Chilblain. R. Hallam.—p. 215.
*Removal of Tonsils and Adenoids in Outpatient Department. J. A. Jones.—p. 217.
Epilepsy and Pregnancy. J. A. Struthers.—p. 218.
*Treatment of Advanced Cases of Intestinal Obstruction or Strangulation. D. C. Corry.—p. 219.

Fracture of Skull in Childhood.—All cases of head injury in children are regarded by Morrison and Roskin as possible cases of fracture of the skull. The suspicion should also arise in children seen suffering from shock not otherwise adequately explained. Of 181 such cases observed, 57 (more than 31 per cent) were found to have bone damage to the skull. It has been their practice to keep these fracture patients recumbent for ten days to a fortnight, and to advise mental quiet and physical rest for a further week, even in the milder cases. In all cases of fracture of the base of the skull the conditions found would suggest the advisability of a dose of antipneumococcal serum, and possibly antistreptococcal serum also, as early as may be after the injury. In cases in which an open wound exists, early operation is imperative after treatment has successfully coped with the primary shock. Local anesthesia is the method of choice, even in small children. Operation was performed in four cases. In three there was a compound fracture of the vault with depression of fragments; in one a large depression without open wound. After infiltration of the subcutaneous tissues down to the pericranium with 0.5 per cent procaine hydrochloride and 1:1,000 epinephrine, the edges of the wound are excised down to the bone, which is then painted with iodine. A small trephine may now be necessary, but in most cases it is possible to nibble away with fine gouge forceps an overhanging edge till access is gained to the under surface of the depressed fragment, which can then be elevated. Even fragments completely separated may be preserved. They contribute materially later on to the soundness of the skull. In no case in this small group did such fragments interfere with primary healing. In all four, convalescence was uninterrupted and recovery complete. Drainage was not required. In one patient transferred from another institution it was found that a scalp wound over a small depressed fracture had been sutured without any operative cleansing. It was grossly infected and the child was dangerously ill. The wound was opened up and antistreptococcal serum given, with excellent results. For cases in which a small depression exists, perhaps as large as the tip of the little finger, operation has not been considered necessary in the absence of an external wound. It is the routine practice to elevate the head of the bed, and when symptoms of increasing intracranial pressure ensue in the shape of slowing pulse and increasing drowsiness, attempts are made to counteract them by rectal injections of 10 per cent sodium chloride solution. If this fails, pressure is relieved by lumbar puncture, repeated if necessary. The effect of this is only temporary, but the authors believe that extensive operations designed to give more permanent relief are not justifiable.

Method for Deciding Pneumococcal "Type."—A swift and simple method for deciding pneumococcal type is described by Armstrong. A sample of sputum is chosen and emulsified in a watch glass with an equal volume of broth. Half a cubic centimeter of the emulsion is inoculated into the peritoneal cavity of a mouse. Four hours later the peritoneal contents are sampled by aspiration in the following manner: The mouse is grasped by the scruff between the finger and thumb of the left hand; at the same time the animal's tail is firmly held against the inner side of the palm of the hand by the third and fourth fingers. The abdomen is thus conveniently explored by means of a 1 cc. record syringe with a fine number 18 rustless steel needle attached. The barrel of the syringe should be held by the third and fourth fingers of the right hand against the palm, and the plunger lifted by the right thumb and index finger. Four drops of the peritoneal exudate thus obtained are expressed on slides marked with a grease pencil to correspond with the three chief pneumococcal types and control; the drops are at once mixed with a platinum loopful of types I, II and III agglutinating serums and rabbits' normal serum. The drops are covered with cover slips as soon as mixed, and examined at once under the microscope, a number 4 ocular and a one-sixth inch objective with plane mirror reflector being used, without a condenser. The immediate result, in the case of a positive reaction, is a conspicuous increase in size of the pneumococci, due to conjugation of coccus and homologous antibody. Brownian movement is retarded, and the pneumococci become apparent as lanceolate bodies surrounded by a clear, highly refractive capsular zone. Agglutination, which soon follows, is accelerated if the slide is warmed on the floor of the 37 C. incubator from three to five minutes and then again examined. The end-result of the reaction is the aggregation of masses of agglutinated pneumococci and leukocytes; the pneumococci, sensitized by conjugation with the antibodies, are chemotactic to the phagocytes and polymorphs present in the peritoneal exudate. This characteristic reaction is seen only when virulent pneumococci are effective, belonging to the recognized serologic types. The result, at times, may be a little obscured by the presence of undigested débris from the sputum, if exploration of the mouse's peritoneum is attempted too soon or the initial dose of sputum is too large. The rate at which the peritoneal cavity deals with this foreign material varies somewhat in different specimens of sputum. The test may be carried out with equal facility at any interval exceeding three to four hours, which period, generally speaking, represents the minimum time required for sufficient multiplication of the virulent pneumococci injected and digestion of the sputum. The agglutinating serums used have a titer of 1 in 40 and are prepared by immunization of rabbits with representative type strains isolated from recent cases of adult lobar pneumonia. The precaution of identifying both strains and serums by agglutination and absorption tests against the standard Rockefeller types has been observed always. Macroscopic agglutination has invariably confirmed the results of microscopic tests. The microscopic method is not only simpler and more rapid but also considerably more delicate than the macroscopic, besides being economical of serum.

Chilblain.—Although the pathology of the chilblain is imperfectly understood, Hallam believes that the actual lesion is not due to a mere transudation through the capillary wall, for the superficial vessels of the susceptible individual are the subject of a pathologic change, which enables sudden lowering of the temperature to act with great intensity, destroying the endothelium of the peripheral vessels *en masse*. Among the predisposing causes are hereditary weakness, lowered resistance due to tuberculosis, and other toxemias.

Removal of Tonsils in Outpatient Department.—As far as available evidence goes at present, Jones thinks it is fair to say that no case has yet been made out for insisting that these operations should not be performed on outpatients. The alternative, that the authorities should provide the necessary bed accommodation for these cases, would entail a large expenditure of money, which would have to be found at the expense of more urgent surgical and medical needs. He is convinced that, with proper precautions, the removal of tonsils and adenoids can be done on outpatients with as little risk as on inpatients.

Treatment of Intestinal Obstruction.—Attention is drawn by Corry to the dehydration of intestinal obstruction similar to that in diabetic coma and in cholera. All three diseases show tissue shortage of water, high blood urea, and low blood chlorides. Large quantities of intravenous physiologic solution of sodium chloride (from 2½ to 3½ pints) associated with *Clostridium aerogenes-capsulatum* antitoxin can be given advantageously during the operation for intestinal obstruction, followed by rectal physiologic solution of sodium chloride and of dextrose after operation.

Kenya & East African Medical Journal, Nairobi

7: 275-310 (Jan.) 1931

Health of Labor on Kisumu-Yala Railway Construction. R. A. W. Proctor.—p. 276.
Bronchiectasis. A. J. Jex-Blake.—p. 282.
Effects of Injection of Human Blood Serum into White Rats Infected with Trypanosoma Rhodesiense. J. F. Corson.—p. 292.
Antimalarial Measures in Native Reserves. C. R. Philip.—p. 297.

Lancet, London

1: 225-280 (Jan. 31) 1931

Meaning of Life. A. Adler.—p. 225.
*Treatment of Cancer of Breast: 150 Cases. L. Martindale.—p. 229.
*Anthracosis, Silicosis and Tuberculosis in Coal Miners. S. L. Cummins. —p. 235.
Effect of Radiation on Macrophages. J. C. Mottram.—p. 238.

Treatment of Cancer of Breast.—Martindale states that for successful treatment in operable cases one has to insure early treatment, when the disease is still localized to the breast by (1) radical operation removing in one piece the breast, fascia, pectoral muscle or muscles, fat and lymph nodes; and, in addition, most important of all, (2) adequate roentgen therapy beginning not more than three to seven weeks after operation, and, lastly, (3) in all advanced cases three or four needles of radium placed along the third, fourth, fifth and sixth intercostal spaces in the hope of destroying cancer cells in the internal mammary group of lymph nodes and two or three needles in the infraclavicular region and axillary region. For inoperable cases, radium and roentgen treatment, according to the kind of recurrence. In those cases in which reduction in the size of a recurrent nodule takes place and it becomes freely movable, surgical eradication, preferably by the endothermic knife, may be carried out within eight to ten weeks. In those cases in which recurrence and metastases produce pain and discomfort, irradiation is the only method that offers any relief at all. The most important factor of all in ultimate success is the early treatment of the disease. As symptoms are unfortunately often absent until the tumor is well developed, probably the only way to insure early treatment would be to establish cancer clinics all over the country and circularize the fact among women of all classes who have passed the age of 35, urging them to be regularly examined every six months by a competent specialist.

Anthracosis and Tuberculosis in Coal Miners.—According to Cummins, the striking histologic and chemical difference between the silicotic and the anthracotic lung is the retention of excessive coal dust in the latter, and the only noteworthy epidemiologic difference between pulmonary silicosis and anthracosis is the absence of a liability to tuberculosis in the latter. This being so, it is natural to associate the presence of accumulated coal dust in the lung with the relative exemption of coal miners from a high tuberculosis mortality and to seek in the one phenomenon an explanation of the other. There appear to be valid arguments against the three main theories so far suggested to explain the alleged protective influence of coal dust against tuberculosis. Neither the physiologic concept of an adjuvant action to the phagocytosis of silica particles, nor the theory of an antiseptic action, nor that of a stimulation of connective tissue by the carbon particles will bear close investigation. There remains the possibility that carbon may owe its "protective influence" to its power of adsorbing toxic substances. The adsorptive power of finely divided carbon for colloidal substances such as dyes is well known and those familiar with the defensive side of gas warfare will recollect the astonishing efficiency of the carbon layer of the "box respirator" in adsorbing poisonous gases. As to the adsorption of the active principle of tuberculin by carbon, conflicting opinions have been expressed. Cummins has been able to prove that the finely powdered dust of anthracite coal is capable of adsorbing a large proportion of the active principle from old tuberculin diluted with physiologic solution of sodium chloride. The active principle of tuberculin, as also of tubercle bacilli, that is to say, the part which evokes allergic reactions in hypersensitive tissues, has been shown to be a protein. It is probably this same active principle which leads to the allergic reactions around tuberculous foci, reactions which, when excessive, lead on through inflammatory hyperemia to necrosis and death of tissue. The presence of large quantities of carbon particles in the immediate vicinity of tuberculous foci might, by adsorbing the products of the growth and destruction of tubercle bacilli, go far to prevent or diminish the inflammatory phenomena that constitute tuberculous disease.

South Africa M. Assn. Journal, Cape Town

5: 33-68 (Jan. 24) 1931

Medical Service for Natives in South Africa. A. H. Gool.—p. 35.
Training of Natives in Medicine. A. B. Xuma.—p. 39.
Medical Services to the Natives. R. H. Welsh.—p. 44.

Journal de Chirurgie, Paris

36: 857-1018 (Dec.) 1930

*Thoracoplasty in Treatment of Pulmonary Tuberculosis. M. A. Maurer. —p. 857.
Experimental Gastroduodenojejunal Ulcers by Derivation of Duodenopancreatic Secretions. A. Ameline and F. Jonckheere.—p. 887.

Thoracoplasty in Treatment of Pulmonary Tuberculosis.—Maurer points out that the results that may be expected from thoracoplasty depend on: (1) the indications, (2) the technic, (3) resections proportionate to the lesions, and (4) good scapular statics. The indications for thoracoplasty may be either pulmonary or pleural. As to the pulmonary indications, thoracoplasty should be used only in cases in which the patients have important lesions that indicate a fatal evolution. With these patients the surgeon should not resort to thoracoplasty under the following conditions: (1) when the lesions are bilateral; (2) in cases of progressive lesions when the patients are febrile and have active ulcerocaseous lesions; (3) when there are other tuberculous lesions, as progressive osseous tuberculosis or renal tuberculosis; (4) when the opposite lung is attacked by sclerosis or emphysema, and (5) when the general condition of the patient is poor. When the surgeon is convinced that thoracoplasty is indicated, he should first make sure: (1) that attempts to establish an artificial pneumothorax have failed or that a pneumothorax, if established, has become inefficacious; (2) that an oleothorax should not be considered; (3) that there are no adhesions the separation of which would make it possible to establish a pneumothorax with success, and (4) that a phrenicectomy or apicolysis is not indicated before thoracoplasty is attempted. The pleural indications are found: (1) in cases of secondary infection in pleural discharge as a complication of an artificial pneumothorax, thoracoplasty usually being preceded by a pleurotomy and accompanied by frequent punctures; (2) in cases of purulent discharge with pulmonary perforation, and (3) in cases of pleural fistulas, accompanying or not a pulmonary perforation. The author emphasizes the following general rules of technic: (1) the necessity to resect the rib in contact with the costotransverse articulation, which must be carefully located in the course of the operation; (2) the necessity for operating under local or regional anesthesia, and (3) the advisability of performing a series of partial operations at different times. In order to secure good scapular statics and a satisfactory esthetic result, the dorsal incision should not be prolonged above a horizontal line passing through the spina of the scapula. The author gives detailed instructions for several different types of thoracoplastic operations.

Presse Médicale, Paris

38: 1745-1760 (Dec. 20) 1930

Physiologic Basis of Blood Transfusion for Hemorrhage. A. Tzanck and J. Charrier.—p. 1745.
*Use of Muscle of Bird as Hemostatic Agent. T. de Martel, J. Guillaume and M. Lassery.—p. 1748.
Fibrocartilaginous Nodule of Posterior Face of Intervertebral Disks. T. Alajouanine and D. Petit-Dutaillis.—p. 1749.
*Fluorine Treatment of Exophthalmic Goiter and Hyperthyroidism. L. Goldemberg.—p. 1751.

Use of Muscle as Hemostatic Agent.—De Martel et al. recommend the use of fragments of the muscular fiber of birds as a hemostatic agent. The muscles of birds contain to an unusually high degree the elements from which thrombin is formed and thus are extremely effective in producing immediate coagulation of the blood. The authors prefer pigeons for this purpose because of the facility with which the birds may be secured and because they are rarely carriers of infection.

Fluorine Treatment of Exophthalmic Goiter.—Goldemberg reports seven cases that show that treatment with fluorine can benefit and even cure patients with severe exophthalmic goiter. Conditions of simple hyperthyroidism can be checked rapidly by this means. Sodium fluoride when taken orally often causes severe gastric and intestinal reactions; and intravenous injections, although well tolerated, do not give as good therapeutic results as are secured when the medicament is administered by mouth. The author recommends beginning the treatment with sodium fluoride given by mouth, and then substituting ammonium fluoride if gastro-intestinal intolerance is observed. In the latter case, intravenous injections of 4 or 5 cc.

of a 2 per cent solution of sodium fluoride may be used also, in series of fifteen injections, given at intervals of forty-eight hours. The ammonium fluoride used is in a 2 per cent solution and is administered four times a day. The doses are at first about 10 drops but are gradually increased until 25 drops or even more are taken four times a day. The treatment should be continued for several months until the basal metabolism is restored to normal.

38: 1761-1784 (Dec. 24) 1930

Graphic Recording of Variations in Tension of Cerebrospinal Fluid. M. Loeper, A. Lemaire and J. Patel.—p. 1761.
Treatment of Urethrorectal Fistulas by Interurethrorectal Myorrhaphy of Levators. E. Chauvin.—p. 1763.
Hypoglycemic Acidosis. G. Maranon.—p. 1765.
*Erythremias of Altitude. C. Monge.—p. 1767.
Etiology of Acute Disseminated Myelitis. L. van Bogaert and J. Baeten.—p. 1770.

Erythremias of Altitude. — In extensive investigations among people living at high altitudes, Monge has made the following observations: Congenital acclimation (i. e., the condition of the natives) involves physiologic modifications that might be considered as a "congenital physiologic erythremia." Acclimation to high altitude may be acquired, in which case it is preceded by a period of adaptation, which is actually a period of mild erythremia, which is cured after a time. The period of adaptation may in certain cases, however, result in attacks of acute erythremia, which have a fatal evolution if the patient remains on the mountains or plateaus and which disappear if he returns to the plain. This form of erythremia, which the author calls "mountain sickness," is in every way analogous to Vaquez's disease.

Revue Belge des Sciences Médicales, Louvain

2: 829-902 (Dec.) 1930

*Radium Treatment for Epitheliomas of Eyelids. M. Appelmans.—p. 829.
Aquatic Leptospiras. A. Bessemans and U. Thiry.—p. 841.

Radium Treatment for Epitheliomas of Eyelids.—Appelmans describes a method of radium treatment for epitheliomas of the eyelids which he has used in seventy-five cases. Although the cases are too recent to ascertain the end-results, the immediate results of the treatment were excellent from both the functional and the esthetic standpoints. The method employed is as follows: 1. In cases of small epitheliomas that are merely intradermal, that leave intact the function of the eyelid and that have not invaded the soft tissues of the orbit, the treatment consists of direct application of tubes containing 2 mg. of the element radium, 12 mm. long, filtered with 1 mm. of platinum. The tubes are placed not more than 1 cm. apart, axis to axis, so that they cover the entire tumor and a little of the surrounding tissues. They are held in place by narrow strips of sparadrap. The dressing is renewed every day and the applications are continued for seventy-two hours. 2. Since small epitheliomas of the inner corner of the eye are often deeper than they seem, invading the soft tissues of the orbit, if one is not entirely certain as to the superficiality of the tumor it is advisable to use a molded applicator placed 3 cm. away or to employ telecurietherapy with a fixed applicator, placed 5 or 6 cm. away. When a molded applicator is used, it is necessary to destroy 1.5 millicuries of radium emanation per square centimeter of radiant surface, which requires a dose of 100 mg. of radium per square centimeter, filtered with 1 mm. of platinum and spread as regularly as possible on the surface of the applicator. 3. In case of epitheliomas that have invaded the soft tissues of the orbit, when there is still a chance of saving the eye, one may use telecurietherapy, a molded applicator or a combined method consisting of radium puncture, followed by a molded applicator or by telecurietherapy. For the method of radium puncture, one uses needles of mild strength (1 mg. for each 1.5 cm. of radiant length, for example) filtered with 0.5 mm. of platinum. The needles, placed 1 cm. apart, may be left in place five days. Afterward 0.5 millicurie of radium emanation per square centimeter of radium surface should be given by means of a molded applicator. When the eye is too deeply involved to be saved, it is advisable to make an evisceration of the orbit with a diathermic loop or knife, followed by coagulation of the entire cavity. A dressing of 2 mg. tubes of radium may then be applied for thirty-six hours.

Archivio Italiano di Chirurgia, Bologna

27: 641-788 (Nov.) 1930

Influence of Endocrine System on Regeneration of Skin and Bones. G. Ceccarelli.—p. 641.
Changes in Common Bile Duct After Cholecystectomy, Studied from Histologic Point of View. O. Amorosi.—p. 727.
*Influence of Phrenico-Exeresis on Respiratory Exchange. M. Gianotti and G. Ceruti.—p. 743.
*Fibroma of Internal Popliteal Nerve. F. Gavioli.—p. 760.
*Influence of Colloids on Arterial Pressure in Traumatic Shock. A. Chiappini.—p. 767.

Influence of Phrenico-Exeresis on Respiratory Exchange. — Gianotti and Ceruti conclude from their researches: Monolateral and bilateral phrenico-exeresis cause remotely a diminution of the values of pulmonary ventilation, of oxygen consumption and of energy consumption, which is more marked in bilateral phrenicotomy. The changes that phrenico-exeresis causes in the respiratory exchange are manifest within a few hours after the intervention and are maintained unvaried after several weeks. There is manifested, as regards respiratory exchange, a frank difference in the reaction of the organism to phrenico-exeresis and to pneumothorax in that, in phrenico-exeresis, the values of the exchange diminish, while in pneumothorax, at least as regards the immediate effect, they are increased.

Fibroma of Internal Popliteal Nerve.—Gavioli regards his case as worthy of note because of the much discussed question as to the nature of connective tissue neoplasms of the peripheral nerves. The careful microscopic diagnosis of the fibroma refutes the hypothesis applied to other nerve neoplasms that have developed from the cells of the neurilemma and that constitute the more frequent eventuality in tumors of the nerves. A fibroma of the nerves is therefore to be regarded as rather rare, and, according to the majority of the authors, absolutely exceptional in neoplasms of the peripheral nerves.

Influence of Colloids on Arterial Pressure in Shock.—Chiappini studied the respective effects of the infusion of an isotonic solution of sodium chloride, of a hypertonic solution of sodium chloride, and of a saline solution of acacia (6 Gm. of acacia in 100 cc. of an isotonic solution of sodium chloride) on arterial hypopressure resulting from experimental traumatic shock. The researches carried out on dogs in which the shock was produced by the application of hemostatic bandages to the lower limbs (the Paolucci method) revealed that only the saline solution of acacia, injected very slowly, brought the arterial pressure permanently to the normal value.

Riforma Medica, Naples

46: 1897-1936 (Dec. 1) 1930

The Cancer Problem. I. Tansini.—p. 1899.
Sensitization of Human Skin to Phenylhydrazine. M. Lucacer.—p. 1904.
*Rare Nerve Complications in Malariotherapy and Remarks on Treatment of Neurosyphilis with Antisyphilitic Injections and Intraspinal Pyrogens. E. Rizzatti.—p. 1905.

Nerve Complications in Malariotherapy. — Rizzatti emphasizes that adequate explanations for the nervous manifestations that arise during malariotherapy are sometimes difficult to find, but that, as a rule, they may be attributed to a reawakening or a remobilization of the syphilitic virus brought about by the action of the plasmodium. The organism, at a certain moment, is doubtless, through the effects of the malariotherapy, in a critical stage, during which not only the pathologic virus but also the therapeutic virus may inflict damage on the human tissues. Such combined effects are well known, and authors have called attention to the fact that malaria and saturnism may complicate the dementia paralytica, causing the development of nerve complications. When, however, the changes induced by the malaria in the syphilitic organism are such as to exclude one of the factors, and the stronger of the two, it is logical that the peripheral complications will clear up.

46: 1937-1976 (Dec. 8) 1930

Leishmaniosis in Children. R. Jemma.—p. 1939.
*Hypoglycemic Reaction Due to Epinephrine in Cirrhosis of Liver. A. Tarsitano.—p. 1944.

Hypoglycemic Reaction Due to Epinephrine in Cirrhosis of Liver. — Tarsitano describes a peculiar type of glycemic reaction after subcutaneous injection of 1 mg. of

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epinephrine in four cases of cirrhosis of the liver (Morgagni-Laënnec) and in one case of atrophic cirrhosis of the liver due to Banti's disease. The charts published show that the curve of hypoglycemia described may assume three different forms: (1) a curve frankly hypoglycemic, with return to the values of the initial glycemia within three hours after the injection of epinephrine; (2) a curve frankly hypoglycemic but without reaching again, after three hours, the values of the initial glycemia, and (3) a curve of glycemia descending irregularly, so that the glycemic index after three hours is lower than the initial index, fasting. These peculiarities of the hypoglycemic curves observed in cirrhosis of the liver may be due in part to the absence of glycogenolysis in the liver under the influence of epinephrine, to exhausting the glycogenetic reserves of the liver, and, furthermore, to a state of hyperinsulinemia induced by the stimulating effect of the epinephrine, by way of hormones, on the genesis of insulin.

Rivista di Clinica Medica, Naples

31: 1033-1076 (Oct. 15) 1930

*D'Amato's Hemoclastic Test in Diagnosis of Syphilis. C. Visani and A. Tanzella.—p. 1033.

*Results of Meinicke Clarification Test, as Compared with Wassermann Test and with Meinicke Turbidity Test, in Internal Medicine. E. Bracaloni and E. Ciaranfi.—p. 1047.

Hemoclastic Test in Diagnosis of Syphilis.—Visani and Tanzella recall that the intramuscular injection of mercuric iodide (0.02 Gm.) provokes in nearly all syphilitic persons a peculiar reaction to which has been given the name of hemoclastic reaction, of which leukopenia is the most characteristic and constant exponent. While such reaction is less sensitive than the ordinary serologic tests in the Wassermann positive types, it is especially sensitive in the types with a negative serodiagnosis. The leukopenic crisis may be regarded as a specific expression of syphilitic infection, for it has not been found in persons with other diseases but assuredly not syphilitic. The authors consider, therefore, that, in the present state of knowledge, the D'Amato reaction cannot replace to advantage the ordinary serodiagnostic tests, owing to its occasional absence in persons with a positive Wassermann reaction who are assuredly syphilitic. It may, however, prove useful in certain localizations of syphilis, especially in the liver and the nerves, in which the Wassermann reaction is often negative.

Meinicke Clarification Test, as Compared with Wassermann Test and with Meinicke Turbidity Test.—Bracaloni and Ciaranfi experimented with cases in the Clinica medica of Florence, to discover the value of the recent colloidal test proposed by Meinicke for the diagnosis of syphilis. They found that the clarification test is highly sensitive, rather more so than the turbidity test proposed by the same author. It is, however, subject to numerous nonspecific results. Owing to this fact and also to the possibility that in rare cases the test might give a negative result in a Wassermann-positive case, the clarification test should not be used as the sole test in the diagnosis of syphilis, while it is yet to be proved whether the clarification test is, on the whole, preferable to the turbidity test. The authors think that if the degree of nonspecificity of the clarification test can be diminished, the slightly more complex technic of the clarification test, as compared with the turbidity test, would not be sufficient to prevent its adoption in place of the turbidity test.

Archivos Argentinos de Pediatría, Buenos Aires

1: 573-639 (Dec.) 1930. Partial Index

*Malignant Lymphogranulomatosis Associated with Serofibrinous Pleural Effusion. L. Morquio.—p. 573.

Malignant Lymphogranulomatosis Associated with Serofibrinous Pleural Effusion.—Morquio reports two fatal cases of malignant lymphogranulomatosis associated with serofibrinous pleurisy in children, aged 14 and 11 years, respectively. Especial emphasis is laid on the pathogenesis of the disease. The author considers as an unsolved problem the relation of lymphogranulomatosis with tuberculosis. Clinical observations point out that in some cases there is no evidence of tuberculosis. The reactions to tuberculin are negative and the microscopic examination of the lymph nodes and the inoculation of animals made with tissues from lymph nodes and with liquid from the pleural effusion fail also to give proof of the presence of tuberculosis. (The author's cases were of this type.) In some other cases, however, there is a marked relation between lymphogranulomatosis and tuberculosis. The presence of tuberculosis in those cases is manifested either by the appearance of lesions of a mixed tuberculous and granulomatous nature or by the association in the same patient of the two lesions, though independently of each other. The author believes that lymphogranulomatosis causes a condition of permanent anergy of the patient, by which the reaction to tuberculin is rendered negative, even when tuberculosis is present. Other theories on the pathogenesis of the disease are reviewed. Points related to the diagnosis, evolution and treatment of the disease are discussed. The author says that, notwithstanding that the disease has been considered as a fatal progressive one, it is possible to stop its evolution by early treatment. It has been reported lately that good results have been obtained from a combined treatment of roentgen irradiation and arsenic, and in some cases also from radon.

Prensa Médica Argentina, Buenos Aires

17: 989-1032 (Dec. 20) 1930. Partial Index

*Perforated Gastric and Duodenal Ulcers. A. Ceballos and O. L. Gómez.—p. 989.

*Surgical Treatment of Luxation of Shoulder Complicated with Fracture of Upper Extremity of Humerus. M. Merello.—p. 999.

Pedunculated Fibromyoma of Uterus: Strangulation by Cervix: Case. O. J. Ratto and L. O. Casanovas.—p. 1015.

Varicocele of Pelvis Simulating Ovarian Cyst: Case. L. O. Casanovas.—p. 1020.

New Speculum with Removable Blades to Facilitate Technic of Curettage. J. C. Orihuela.—p. 1022.

Perforated Gastric and Duodenal Ulcers.—Ceballos and Gómez state that perforated gastric and duodenal ulcers are more frequent in men than in women. In a group of patients with nonperforated gastric and duodenal ulcers observed by the authors there were 344 men and 15 women. In a group of 60 persons with perforated gastric and duodenal ulcers, all the patients were males, aged from 15 to 60 years. Most of them, however, were from 30 to 40 years of age and only one was 15. In some patients with ulcer either the disease follows an asymptomatic evolution until the moment in which the ulcer perforates, or the symptoms pass unobserved to the patient, because they are not severe. In cases of this type it is probable that the ulcer perforates shortly after it is formed. The majority of patients, however, had antecedents of gastric disease. In some cases there is a condition which may be considered as the preperforative stage of the ulcer. The predominant symptom of this stage is a constant though not intense pain. During the preperforative stage the indications for an emergency operation are obvious, since the perforation of the ulcer takes place some hours after the appearance of the preperforative stage. In the majority of cases the perforation of the ulcer is preceded a few hours by the sudden appearance of excruciating pain, especially in the epigastric region. In some cases the pain is so intense that it causes a syncopal condition of the patient. Even in the cases in which the diagnosis of the preperforative stage is made previously, the pain of the perforation appears in a sudden intense form, after a period of relative alleviation of the pain of the preperforative stage. Marked rigidity of the whole abdominal wall may be considered a pathognomonic symptom of perforated gastric and duodenal ulcers. It was observed in the authors' cases in 76.66 per cent under the form of boardlike hardness and in 11.66 per cent under the form of a generalized muscular defense. The authors consider posterior gastro-enterostomy as the operation of choice. Both the immediate and the remote results are satisfactory. In recently perforated ulcers, far from the pylorus, as a rule the suture of the ulcer gives good results. However, in those cases in which the suture is difficult because of extensive infiltrations, gastro-enterostomy should be resorted to. The earlier the operation is performed the better are the results that can be expected from it. Two patients in the authors' group in whom the operation was performed after twenty-four hours died. It is advisable to consider jejunostomy as the operation of choice for those patients in whom the operation is not performed within the first eighteen hours. Drainage is unnecessary in patients in whom the operation is performed within

the first six hours. When the operation is performed beyond that period, however, drainage is advisable.

Surgical Treatment of Luxation of Shoulder Complicated with Fracture of Humerus.—Merello says that in the reduction of luxations of the shoulder, complicated with fracture of the upper extremity of the humerus and displacement of the head of the humerus, the bloodless method is unsatisfactory. The opening of the scapulohumeral articulation is a safe method, which enables the surgeon by the inspection of the operative field to eliminate clots or splinters, to correct the intra-articular conditions that make reduction of the fracture difficult and also to decide the proper operation which should be done, either resection of the head of the humerus or its reposition. The resection of the head of the humerus, however, should be performed only in special cases, since it is a mutilating operation that interferes with the functional capacity of the arm. The operation of Morestin and Louis Bazy should be the method of choice. Its technic is very simple, and it does not cause mutilation. Because of the visual control that the surgeon has of the operative field, the nervous and the vascular plexus of the axilla are protected against any possible injury during the operation. The prognosis of the serious complication of the fracture of the upper extremity of the humerus with luxation of the shoulder is modified if the technic mentioned is used. The technic insures a maximum degree of functional integrity of the scapulohumeral joint. The author describes in detail the technic of the operation, and its several steps are shown by means of illustrations. A case is reported. Roentgenograms are given of the condition of the shoulder of the author's patient before and after the operation.

Deutsche medizinische Wochenschrift, Berlin

57: 1-46 (Jan. 2) 1931. Partial Index

Old and New Problems in Nutrition. W. His.—p. 1.
Idem. C. von Noorden.—p. 2.
Dangers from Diphtheria? Bürgers.—p. 6.
*Liver Therapy in Pernicious Anemia. T. Fahr.—p. 8.
Reasons for Rejection of Salt-Free Diet by Institutions for Care of Tuberculous Patients. O. Ziegler.—p. 11.
Technic of Treatment of Gonorrhea in Men. C. Bruck.—p. 15.

Liver Therapy in Pernicious Anemia.—Fahr states that even the morphologist can observe the favorable influence of liver therapy in pernicious anemia. The necropsy of persons who died during remissions of intercurrent diseases revealed that the changes in the bone marrow, heart and liver, which are characteristic for pernicious anemia, had mostly disappeared. However, the favorable influence of the liver therapy affects the hematologic conditions and the related organs only, whereas, on the other hand, cases may be observed in which the blood picture is favorably influenced but which nevertheless have a fatal outcome, because toxic changes which are not dependent on the blood picture are not influenced by the liver therapy and therefore progress unhindered and cause death. Most important among these processes is funicular myelitis. Occasionally, cases are observed in which the liver therapy has no influence on the blood picture. Whether improvements in the technic of liver therapy will eliminate such cases or whether certain complications in these cases are responsible for the failure of the liver therapy remains to be seen.

Deutsches Archiv für klinische Medizin, Leipzig

169: 257-380 (Dec.) 1930

Cardiac Dyspnea. C. Kroetz.—p. 257.
*Exophthalmic Goiter: Morphologic Composition of Blood and Erythrocyte Sedimentation Speed. E. von Balden.—p. 285.
Psittacosis: Clinical Aspect. G. Adamy.—p. 301.
*Chronic Pyelogenous Nephritis. R. Schoen.—p. 337.
*Severe Anemias: Changes in Cardiovascular System. F. W. Grünberg.—p. 354.
Functioning of Sympathetic Nervous System in Old Persons. F. Lasch and A. Müller-Deham.—p. 369.

Exophthalmic Goiter: Morphologic Composition of Blood and Erythrocyte Sedimentation Speed.—According to von Balden, in exophthalmic goiter there is only a moderate anemia and a moderate lymphocytosis. The erythrocyte sedimentation speed is usually normal; only occasionally is it slightly accelerated or retarded. The conclusion is obvious, therefore, that neither the blood picture nor the erythrocyte sedimentation speed is of value in the differential diagnosis and prognosis of exophthalmic goiter. The suggestion is made that these forms of investigation be discarded as superfluous in favor of other forms that give reliable information with regard to the severity of the condition and to the effect of treatment.

Chronic Pyelogenous Nephritis.—Schoen divides cases of chronic pyelogenous nephritis into two main groups: (1) chronic pyelonephritis with stasis of urine (hydronephrotically contracted kidney) and (2) chronic pyelonephritis without stasis of urine. The two groups are divided into two subgroups according to whether the course of the disease is characterized by exacerbations (chronic recurrent pyelonephritis) or by a primarily chronic course (chronic pyelogenous nephritis).

Severe Anemias: Changes in Cardiovascular System.—Grünberg reports the results of examination of the cardiovascular system in 111 cases of severe anemia (49 cases of pernicious anemia and 62 cases of secondary anemia). It was noted that the heart enlarged first toward the left, then also toward the right. In a few cases, postmortem examination revealed an hypertrophy of the myocardium. The pulse rate was increased regularly only in cases of severe anemia. In anemias with a hemoglobin content below 65 per cent the blood pressure was usually decreased; both the maximal and the minimal pressures were subnormal but in general the decrease was most marked in the minimal pressure. In some cases only the minimal blood pressure was decreased. The pulse pressure was increased (greater than 0.7 of the minimal blood pressure) in 25 per cent of the cases of anemia with a hemoglobin content of from 65 to 36 per cent, in 55.2 per cent with a hemoglobin content of from 35 to 26 per cent, and in 73.7 per cent with a hemoglobin content of from 25 to 12 per cent. In cases of anemia in which the status of the blood was observed, it was noted that the changes in it and in the cardiovascular system were parallel. The increase in the pulse pressure, chiefly at the expense of a decrease in the minimal pressure, the hypertrophy of the myocardium and perhaps also the initial slight degree of cardiac dilatation are the manifestations of increased cardiovascular work to compensate for the hemoglobin deficiency. On the other hand the marked cardiac dilatation, increase in the pulse rate and decrease in the blood pressure with relative increase in the pulse pressure that are observed in severe anemia are the manifestations of a cardiovascular insufficiency.

Folia Haematologica, Leipzig

43: 1-272 (Dec.) 1930

*Eosinophil Leukemia with Lymph Node Tuberculosis or Leukemoid Reaction with Eosinophilia? J. Brumlik and H. Šikl.—p. 1.
*Pernicious Anemia: Etiology. K. von Knorr.—p. 32.
Myeloid Metaplasia. F. J. Lang.—p. 95.
Oxydase Granulation: Origin. G. Wallbach.—p. 121.
*Micromyeloblastic Leukemia with Numerous Mitoses in Peripheral Blood. E. Rabinovici.—p. 132.
Ameboid Motility of Leukocytes. E. von Philipsborn.—p. 142.
Tropical Sprue: Blood Picture. E. A. Baumgartner.—p. 192.

Eosinophil Leukemia with Lymph Node Tuberculosis of Leukemoid Reaction with Eosinophilia?—Brumlik and Šikl report the case of a man, aged 45, who presented a general enlargement of the lymph nodes. The blood picture showed a leukocytosis ranging from 25,000 to 60,000, with from 44 to 78 per cent eosinophils, 25 to 53 per cent neutrophils, 1 to 6 per cent lymphocytes and 0.3 to 2 per cent myeloblasts. The disease was accompanied by fever and its course was not influenced by roentgen treatment, which did, however, cause a marked diminution in the size of the lymph nodes and a drop in the number of leukocytes to 11,000. As in other cases of marked eosinophilia, only a few eosinophil myelocytes were present in the peripheral blood. Most of the eosinophils were of a mature form. Clinically the condition appeared to be lymphogranulomatosis, but examination of an excised lymph node revealed a condition that resembled both a neoplasm and subacute myeloid leukemia. The lymph nodes began to enlarge seven months before death but the patient felt acutely ill only during the last two months of the disease. Postmortem examination revealed, in addition to a small calcified focus in the lung, an extensive caseous tuberculosis of the lymph nodes. The liver and spleen were only moderately enlarged. On the basis of neither the clinical nor the necropsy observations was it possible to make a differential diagnosis between a leukemia

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with both eosinophilia and secondary tuberculosis of the lymph nodes and primary tuberculosis of the lymph nodes which had produced a leukemoid reaction whose eosinophil character was the result of an individual predisposition of the patient.

Pernicious Anemia: Etiology.—Von Knorr believes that pernicious anemia is caused by *Diplococcus perniciosae*. The most striking characteristics of this micro-organism are a low degree of virulence, a weak hemolytic action and particularly the power of its toxin to cause hyperchromic anemia. It may be demonstrated in both the mouth and the duodenal juice of persons with pernicious anemia. With homologous and heterologous serums from human beings with pernicious anemia it gives a high agglutination titer (1:1,200), proving that it is the cause of the disease. In experimental animals it produces a hyperchromic anemia resembling pernicious anemia. The colon bacillus in the intestinal canal plays only a secondary part in the etiology of pernicious anemia. The carbohydrate and particularly the protein products of decomposition caused by the colon bacillus are probably adjuvant factors in the pernicious hemolysis. The primary cause is the toxic action of *D. perniciosae*, which is later completed by the pathologic metabolic products of the fermentative activity of the colon bacillus. The fact that in the animal experiments better results were obtained with white rabbits than with rabbits of other colors indicated that in the pathology of pernicious anemia constitutional factors are of importance. One of the constitutional factors in human beings is achylia.

Micromyeloblastic Leukemia with Mitoses in Peripheral Blood.—Rabinovici reports a case of leukemia in which there was present evidence of both acute and chronic leukemia. A leukocyte count of 178,000 and the presence of a large number of immature blood cells and mitoses in the circulating blood indicated acute leukemia, but the condition had been present for a long time and had not been accompanied by marked changes in the general condition of the patient and the cardinal symptoms of acute leukemia were absent. Against the diagnosis of lymphatic leukemia there were the presence of true myeloblasts, a marked reaction of the erythropoietic system associated with a relatively slight anemia, and microscopic changes in the liver. On the basis of the small number of myeloid cells, mixed leukemia was eliminated. Emphasis is given to the importance of mitoses in the peripheral blood for the study of the origin of the blood cells.

Jahrbuch für Kinderheilkunde, Berlin

130: 1-126 (Dec.) 1930

*Goat's Milk Anemia. E. Letterer.—p. 1.
*Malignant Diphtheria. H. Knauer.—p. 37.
Toxic Dyspepsia of Nurslings: Treatment with Colon Bacillus Vaccine. K. Scheer and G. Abraham.—p. 45.
Fragility of Capillaries and Endothelasthenia. G. Frontali.—p. 62. Reply to Frontali. W. Bayer.—p. 66.
*"Initial Diarrheas" of Nurslings. L. Moll and E. Stransky.—p. 67.
Diphtheria in Bratislava. A. J. Chura.—p. 79.
*Bacillary Diagnosis of Typhoid by Means of Bacteriophage. Z. Teveli.—p. 113.

Goat's Milk Anemia: Anatomicopathologic Picture.—Letterer states that in a study of five cases of goat's milk anemia the most striking observation was the relatively slight regeneration capacity of the blood. If normoblasts were present, their number was small and microscopic examination of the bone marrow always showed only a moderate erythropoiesis. In one case in which marked regeneration was present it soon became pathologic and there occurred a myeloblastic transformation of the erythropoiesis. In this either too slight or pathologically increased erythropoiesis there was a resemblance between goat's milk anemia and pernicious anemia. The author believes that the discovery of the constituent of goat's milk that causes anemia will throw light on the question of the pathogenesis of pernicious anemia.

Malignant Diphtheria: Treatment.—Knauer states that both of two children with malignant diphtheria whom he treated with large doses of diphtheria serum and streptococcal serum died. On the other hand, three of four children with malignant diphtheria whom he treated with diphtheria serum and arsphenamine recovered, and even in the child who died the treatment was followed by improvement in the general condition and the fatal cardiac collapse seemed attributable to causes other than the malignant diphtheria. The administration of even large doses of arsphenamine did not produce deleterious effects. The results of the combined treatment of malignant diphtheria with diphtheria serum and arsphenamine were so satisfactory that the author intends to use it in all future cases and recommends its general application.

"Initial Diarrheas" of Nurslings and Their Prevention.—According to Moll and Stransky, one of the most important conditions associated with the hospitalization of infants is the diarrhea that appears soon afterward and that is known as initial diarrhea. In a search for the cause of this condition, consideration was given to the rubber sheets used on the infants' beds. The rubber sheets used were of a kind that could not be boiled without losing their impermeability and were sterilized therefore by means of a disinfectant fluid. Bacteriologic examination of the sheets following chemical sterilization revealed the presence of living colon bacilli, which are recognized as a cause of diarrhea in nurslings. A new kind of rubber sheet that could be boiled thirty times without losing its impermeability was introduced in the institution, in which, on an average, ninety nurslings are hospitalized. The annual number of cases of initial diarrhea dropped from twenty-three to five.

Bacillary Diagnosis of Typhoid by Means of Bacteriophage.—According to Teveli's investigations, the Sonnenschein diagnostic typhoid bacteriophage is specific. Of the strains of typhoid bacilli examined, 91.43 per cent were identified. In cases in which a negative result is obtained, the strain should be investigated by other means.

Klinische Wochenschrift, Berlin

9: 2425-2456 (Dec. 27) 1930

Results of Malariotherapy in Dementia Paralytica. B. Dattner.—p. 2425.
Pharmacologic Studies on Action of Mixtures of Caffeine and Adenine. D. I. Macht and H. Schroeder.—p. 2429.
Experimental Foundation of Serologic Demonstration of Specific Cancer Antigen. H. Lehmann-Facius.—p. 2430.
*Treatment of Insulin Lipodystrophy. R. Boller.—p. 2433.
Studies on Microbic Eczema. E. Ramel and A. Benziger.—p. 2435.
*Humoral Changes in Trypanosomiasis: Auto-Antibodies. O. Fischer.—p. 2436.
Influence of Digitalis on Final Deflection of Electrocardiogram. E. Blumenfeldt and S. G. Strauss.—p. 2439.
*Anemic Tongue Phenomenon of Arterial Air Embolism During Induction of Pneumothorax. E. H. Michalowsky.—p. 2440.
Sugar Metabolism in Spontaneous Levulosuria. P. A. Heeres and H. Vos.—p. 2440.
Functional Disturbances of Liver in Exophthalmic Goiter. H. Strauss.—p. 2441.
Rubber Stocking or Rubberless Stocking for Treatment of Varicose Veins? W. Schlör.—p. 2441.
Idem. W. Strauss.—p. 2442.

Treatment of Insulin Lipodystrophy.—Boller directs attention to insulin lipodystrophy, which occasionally develops during continued insulin treatment. It is a localized atrophy of the subcutaneous fatty tissues at the site of injection. Because this symptom does not develop in all cases, a special predisposition seems to be a pathogenic factor. In most cases of insulin lipodystrophy the fat tissues atrophy only at the site of injection; however, in the literature is the report of a case in which there was atrophy of the right cheek, a location far removed from the site of injection. The author states that the patients with insulin lipodystrophy ask for medical aid not only because of the scars but also because the condition is painful. When the subcutaneous tissues commence to atrophy, the injection is extremely painful and the pains usually persist for several hours after the injection. Several physicians who have observed patients with insulin lipodystrophy recommend a frequent change of the site of injection. The author, however, does not consider this a solution of the problem, because this does not prevent the pains. He attempted to counteract the pain during the injection by adding a solution of cocaine or of procaine hydrochloride to the insulin. He not only succeeded in this but also noted that the lipodystrophy was favorably influenced. At the sites where atrophy existed it did not progress further, and at the new sites of injection it did not develop. And when the injections were again made closer to the atrophied areas it was even noted that regeneration was more rapid than the spontaneous regeneration would have been. The author further asserts

that inflammatory local reactions at the beginning of the insulin therapy can likewise often be prevented by adding procaine hydrochloride to the insulin.

Humoral Changes in Trypanosomiasis: Auto-Antibodies.—Fischer reports the clinical history of a man, aged 43. In 1914, while in Cameroon, the patient had had an attack of tropical malaria and of blackwater fever. In 1925 the malaria had recurred, and in 1928 he had received treatment for tropical trypanosomiasis. The acute manifestations of this disease had lasted four weeks. On returning from Africa in the fall of 1929, he showed mental disturbances. However, there were no neurologic signs of a disturbance of the central nervous system. In order to determine whether the mental disturbances were caused by a syphilitic infection, by the malaria infection or by the trypanosomiasis, a number of serologic tests were made. The blood picture was pathologic. Examination of the cerebrospinal fluid revealed lymphocytosis, and colloid and protein reactions indicated pathologic changes. But the most interesting serologic finding was the antibody formation against the patient's own red blood corpuscles. However, this alone was not decisive for the differential diagnosis, because auto-antibodies have been observed in syphilis and in malaria. But because they are characteristic for parasitic diseases, and because there were no other indications of malaria or syphilis, the presence of auto-antibodies, the anamnesis, the clinical aspects and the humoral changes may in this case be considered as a syndrome of chronic trypanosomiasis.

Anemic Tongue Phenomenon as Symptom of Air Embolism.—Michalowsky first directs attention to Liebermeister's article on the anemic tongue phenomenon as an early symptom of air embolism during induction of pneumothorax, which was reported in the *Klinische Wochenschrift* (**8**:21 [Jan. 1] 1929; abstr. THE JOURNAL, March 16, 1929, p. 940). He then reports two cases in which he observed this symptom. In one instance cerebral disturbances developed, but they disappeared again after several hours. The second case is of interest because it contradicts Liebermeister's theory of the mechanical pathogenesis of this symptom. The pneumothorax was on the right side and the patient was lying on his left side while the filling was done. However, the tongue phenomenon developed on the left side. Thus, the pure mechanical explanation seems to be refuted. Nevertheless, the author emphasizes the practical value of this sign and advises that it should be watched for whenever pneumothorax is induced, in order to prevent fatal embolisms.

Medizinische Klinik, Berlin

26: 1917-1934 (Dec. 24) 1930

Results and Value of Obstetric Roentgen Diagnosis. K. Heim.—p. 1917.
Active Psychotherapy. S. Fleischmann.—p. 1919.
*Cure of Chronic Urticaria Following Oral Administration of Sodium Bicarbonate. L. Dinkin.—p. 1921.
Aleukemic Lymphadenosis of Stomach Demonstrated in Roentgenogram. V. Švab.—p. 1922.
Most Important Tests for Detection of Bilirubin in Urine. E. Eitner.—p. 1924.
Nature of Wassermann Reaction. F. Weyrauch.—p. 1925.

Cure of Chronic Urticaria with Sodium Bicarbonate.—In more than twenty cases of chronic urticaria, which Dinkin observed during the last three years, he obtained favorable results with oral administration of sodium bicarbonate. Occasionally relapses occurred, particularly at the time of menstruation or during acute exacerbation of a frequently simultaneously existing cholecystitis. However, by continuing medication with sodium bicarbonate or by resuming it again, the relapses could be counteracted and gradually a complete cure was effected. In regard to the dosage it is stated that from 8 to 10 Gm. should be given three times daily. If the single dose is found too large, from 5 to 6 Gm. should be given four times daily. It is best to give the sodium bicarbonate after meals. If the medication is continued for some time, alkalosis may develop, and in order to overcome this the medication with sodium bicarbonate should be discontinued for several days and an acidity inducing diet should be instituted. The author advises against intravenous administration of sodium bicarbonate, because he considers it unnecessary and also dangerous. In other itching disturbances, in eczema, in dermatitis or in serum exanthem, sodium bicarbonate is not effective.

Odeskiy Medichniy Jurnal, Odesa

5: 217-368, 1930

*Causal Agent of Cancer. M. Nevyadomskiy.—p. 233.
Clinical Features of Splenopneumonia. L. Chijina.—p. 237.
New Methods of Treatment of Paroxysms of Angina Pectoris. G. Katz.—p. 243.
*Oatmeal Diet in Treatment of Diabetes. M. Shilman.—p. 249.
*Retraction of Blood Clots in Cases of Malaria. P. Onnitsev.—p. 255.
*Influence of Cations on Gastric Secretion. G. Lurye and B. Temper.—p. 261.
Method for Functional Test of Skin Vessels. V. Kuznetsov.—p. 277.
Anatomicobiologic Reaction for Early Diagnosis of Pregnancy. N. Glekler and N. Kamionskiy.—p. 287.
Cytologic Picture of Expectoration in Cases of Malignant Pulmonary Tumors. N. Glekler.—p. 293.
*Large Doses of Specific Serum in Treatment of Anthrax. L. Cheremushkina.—p. 295.
Combined Milk and Vaccine Treatment in Cases of Complicated Gonorrhea. L. Leytes, L. Litvak and I. Motornov.—p. 307.
Use of Charcoal in Cases of Poisoning with Phenol or with Narcotics. E. Leibenzon.—p. 313.
Clinical Features of Cholecystoduodenal Fistulas. M. Mamikonov.—p. 325.
Cases of Acute Laryngeal Edema Following Influenza. O. Kalina.—p. 345.

Study of Parasite Considered as Causal Agent of Cancer.—Nevyadomskiy refers to his report made in 1928 in which the parasitic origin of cancer was pointed out. The statement was based on cytologic examinations of the tumor and of the hemorrhagic exudate removed from mice with an abdominal cancer; parasitic cells were found in them. Further inoculations of the cancer were obtained with filtrates, autolysates and blood. The results were later confirmed by Blumenthal and Lipschütz. The author has ascertained that the parasite was a *Gregarina*. The connection of *Gregarina* with the cancer cells was demonstrated in hundreds of slides. The *Gregarina* presented a stage of schizogenesis and therefore was classified among the schizogregarina species. Nevyadomskiy gives a detailed description of the parasite and of its life cycle. Cultures of the parasite were obtained; recently the author could demonstrate the growth of spores in the cultures; inoculation with these cultures produced cancer in mice. The results are considered as a proof that *Gregarina* is the causal agent of cancer. The author has found *Gregarina* also in cancerous tumors in man; he obtained growth of their spores in cultures.

Oatmeal Diet in Treatment of Diabetes.—The treatment was first suggested by von Noorden in 1902, who found that oats contain substances promoting utilization of carbohydrates. Later statements confirmed that the external portion of oat grains contains substances that tend to reduce the amount of sugar in the blood and in the urine. In Zukershtein's twenty-three patients with diabetes the oatmeal diet constantly induced a considerable reduction of ketone bodies in the blood and in the urine; the action proved to be more marked than that of insulin. Shilman used the oatmeal diet in five patients with a severe diabetes; there was from 5 to 9 per cent sugar in the urine and a pronounced acetonuria. The oatmeal diet was combined with the usual antidiabetic regimen, consisting of a limited amount of proteins and of carbohydrates. For from three to five days the patients were given daily 150 Gm. of oatmeal with a quarter of a pound of butter; the gruel was divided for four or five meals. Afterward the diet consisted of 30 Gm. of carbohydrates and of proteins, from 0.6 to 0.8 Gm. per kilogram of body weight. The total amount of from 20 to 25 calories per kilogram of body weight was completed with fats. The regimen was continued for a few days; then the quantity of carbohydrates and of fats was gradually increased. From time to time the oatmeal diet was prescribed for one day. The metabolism of the patients became normal; the sugar and the acetone have disappeared. In one patient, ulcers located on the legs and in the hypogastric region, which had resisted local treatment for three months, started to heal after five days. The healing was completed by the end of the month. Insulin is indicated when the oatmeal diet fails; also in patients in a comatose or precomatose state.

Retraction of Blood Clots in Cases of Malaria.—Onnitsev had determined the number of thrombocytes and the index of retraction in fourteen patients with a tertian malaria and in one with a tropical malaria, before treatment. In ten cases the examination was repeated after one or two series of

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treatment with quinine (each series lasting five days). While normally the index of retraction ranges between 0.3 and 0.5, it was from 0.14 to 0.33 in the cases examined. The index rose to from 0.29 to 0.46 after treatment. There was no direct connection between the index of retraction and the number of blood plates. The increase of the number of blood plates was usually more rapid than that of the retractive index. Evidently the retraction of blood clots depends not exclusively on the number of the blood plates but also on their functional capacity, which varies in different stages of the disease. The author presumes that, besides changes in the thrombocytes, a reduction in the retraction of blood clots plays a part in hemorrhagic diathesis observed in patients with malaria.

Influence of Cations on Gastric Secretion.—The observations of Lurye and Temper were made on nineteen patients with a normal gastro-intestinal functioning or with a disturbed gastric secretion. The gastric contents were first withdrawn with a thin catheter with the patient fasting; then after a test breakfast, every ten minutes. The breakfast consisted of 300 cc. of distilled water and of 0.2 Gm. of caffeine sodiobenzoate, to which 1 or 2 drops of methylthionine chloride were added. From 5 to 10 cc. of a 5 or 10 per cent solution of magnesium sulphate was injected intravenously at the various phases of gastric secretion. The injections were well tolerated. They were followed by an increase of the total acidity and of the free hydrochloric acid of the stomach. The increase was greater in cases of hyperacidity than in those of hypo-acidity. The injections proved to be without influence in cases of achylia. The authors consider that the achylia was probably associated with anatomic changes in the gastric glands; hence the injections could be used for differentiation of a functional achylia from an organic one. Previous experiments indicated that the action of the magnesium salt is due to the magnesium cations. Therefore in treatment with magnesium salts their influence on the gastric secretion ought to be considered.

Treatment of Anthrax with Large Doses of Specific Serum.—Cheremushkina's experience includes 115 patients with anthrax. A dose of 150 cc. of antianthrax serum was injected intravenously and the injection repeated on three successive days, in the morning. Exceptionally the serum was injected also in the evening; it was warmed and injected slowly. In some cases, phenomena of serum sickness occurred; they lasted only a few hours. The local treatment consisted first in the application of dressings moistened with a 1:3,000 solution of corrosive mercuric chloride or with a 1:1,000 solution of potassium permanganate; later in the application of an ointment. The author stresses that antianthrax serum prevented the local infection from becoming general; it was frequently possible to cure an anthrax septicemia. The amount of the serum given may total up to a liter. In cases of medium intensity the serum is administered intramuscularly in a dose of from 80 to 200 cc.; the dose can be repeated. In severe cases the serum ought to be administered intravenously and intramuscularly (from 80 to 120 cc. at once). The action of the serum is probably antitoxic and bactericidal.

Russkaya Klinika, Moscow

13: 551-747, 1930

*Hemolytic Jaundice and Biliary Thrombi. I. Mirskiy.—p. 561.
*Pathogenesis and Treatment of Hepatic Ascites. R. Mejebovskiy.—p. 568.
*Action of Mersalyl in Patients with Obesity. H. Zolotareva and T. Kogan.—p. 606.
Correlation Between Gastric Secretion, Evacuation and Peptic Functioning. A. Vakar and L. Isakovskaya.—p. 613.
Influence of Alcohol and of Beer on Gastric Secretion. A. Gukasyan. —p. 659.
*Use of Esophagoscope in Gastroscopic Examination. G. Belenkiy.—p. 675.
*Ultraviolet Treatment of Ozena. M. Naletova.—p. 692.

Hemolytic Jaundice and Eppinger's Biliary Thrombi.—Mirskiy considers that the pathogenesis of hemolytic jaundice can be explained by his theory of the formation of bile. The formation of bile is not associated with a specific activity of the liver; it is due to the splitting of hemoglobin molecules. Old erythrocytes are expelled from the blood stream into the adjacent tissues, where they form microscopic hematomas. The splitting of the hemoglobin and the formation of bilirubin take place in the microhematomas. Thus bilirubin, like the bile acids, is formed outside of the liver and outside of the Kupffer and other reticulo-endothelial cells; it is only excreted by the liver. In the experiments, tolylenediamine and arseniureted hydrogen did not cause hemolysis but rendered the erythrocytes excessively fragile. Under their action, the erythrocytes produced by the hematopoietic organs were fragile. They accumulated in the spleen, where their fragmentation occurred. The destruction of the erythrocytes resulted in a considerable liberation of hemoglobin and a marked formation of bilirubin. Besides, the poisons brought about destruction of the hepatic parenchyma; as a result, the elimination of bilirubin was impaired and jaundice developed. A deficient elimination of the bile was responsible for the presence of Eppinger's thrombi in the biliary canaliculi. The author points out that such biliary formations were found in hepatic diseases independently of pleiochromia. Stagnation of bile in the intercellular biliary canaliculi and the consecutive resorption of water from the bile result in the formation of Eppinger's thrombi. Mirskiy regards the condition as paresis of the biliary canaliculi and the biliary thrombi merely as biliary cylinders. The biliary cylinders can be detected microscopically in almost all hepatic diseases. In cases of hemolytic jaundice they are connected with an overcharging of the hepatic cells, from an exaggerated activity, and subsequent arrest of the biliary excretion.

Treatment of Ascites Associated with Hepatic Cirrhosis.—Mejebovskiy's observations were made on the action of calcium chloride on the water metabolism of eleven patients with ascites accompanying hepatic cirrhosis. The diet consisted of milk, baked potatoes, rice cooked without salt, boiled meat, fruit and eggs. One or two glasses of weak tea were allowed a day. The patients were observed for at least a month. They were given calcium chloride, at a daily dose of from 12 to 15 Gm., for two or three weeks. The large doses of calcium chloride were usually well tolerated. The results were positive in eight patients and negative in two; in one, the ascites remained stationary. In six cases, recurrences developed after from three to eleven months. The action of calcium chloride proved to be a diuretic and a dehydrating one; thus, in one case the urinary secretion increased about fourfold. The content of sodium chloride increased notably in the urine and in the blood. In one of the two cases, in which calcium chloride was without influence, the amount of chlorides in the blood decreased, pointing to their retention by the tissues. One patient lost 15 Kg. in weight within three weeks, whereby his ascites disappeared almost completely. The rapid loss of weight (from 500 to 700 Gm. a day) was not connected with the diuresis (the average was 400 cc. of urine a day) since the intake of liquids was 500 cc. a day. Obviously the calcium chloride was able to promote the extrarenal elimination of water. The theory that ascribes the action of calcium chloride to colloid changes appears to be the most plausible. Failure of the calcium chloride in certain cases is explained by excessive changes in the tissue colloids, as from severe anemia. Mejebovskiy concludes that stasis in the portal system is the primary but not the only cause of ascites associated with hepatic cirrhosis. Physicochemical changes in the colloids (endothelium) of the vessels and of the peritoneum constitute another factor. In the action of calcium chloride, the fundamental rôle belongs to the chloride anion; the rôle of the calcium cation is secondary. The effect of calcium chloride manifests itself only when the food used is free from sodium chloride; otherwise, calcium chloride may favor accumulation of the fluid. The calcium chloride treatment should be tried in all patients with ascites, alone or in combination with other diuretics.

Mersalyl in Treatment of Obesity.—The treatment with mersalyl was used by Zolotareva and Kogan in thirty-one obese patients. The weight of the patients varied from 80 to 133 Kg. Mersalyl was employed after other methods of reduction failed. During the treatment, the usual foods and beverages were not changed. In twenty-eight cases, the injection of mersalyl was followed by a considerable increase in the amount of urine discharged, which sometimes reached 3 liters a day. In the remainder, the increase was slight. The increase in the elimination of chlorides paralleled that of the urine; their amount reached from 12 to 37 Gm. a day. The reduction of weight was marked (4 Kg. in a week, in one case). A single dose of 1 cc., more rarely of 2 cc., was injected once or twice within a month

or a month and a half. No cardiac disturbances were ever observed. A transient hematuria occurred in one instance and a mild stomatitis in another. A decrease of water and of ion charges in the cells inhibits their activity, while accumulation of ion charges and afflux of water to the cells stimulate their activity. According to this theory, the induced hyperchloruria and polyuria are explained as follows: Under the influence of mersalyl the p_H of the proteins is shifted to the alkaline side, and the phase of inhibition changes to that of activation which results in polyuria and in elimination of chlorides. Hence, mersalyl proves to act as a catalyzer of oxidation processes; this action is opposite to that of the posterior lobe of the hypophysis, which plays a notable part in the development of obesity.

Gastroscopic Inspection by Means of Esophagoscope.—The esophagoscope is first inserted, and then the gastroscope is introduced through it. The gastroscope is connected with the source of the electrical energy, from which the esophagoscope has been disconnected. Elsner's gastroscope easily passes through the outer tube of Bruning's esophagoscope. The end of the gastroscope is provided with a rubber cap, which is pushed into the gastric cavity. This method allows a direct inspection of the gastric mucosa; it has been used by Belenkiy for the last four years. Difficulty or complications were never encountered.

Ultraviolet Rays in Treatment of Ozena.—Naletova's experience included twenty-seven patients with ozena; among them were seven men and twenty women. Their age ranged from 8 to 47. A quartz lamp was used for irradiation of the face; the eyes and the forehead were covered with a folded towel. The distance between the face and the lamp was 50 cm. The therapeutic dose (free from erythema phenomena) was applied; the duration of the sittings was gradually increased from one to twelve minutes. The number of sittings varied from ten to twenty-five. The sittings took place three times a week. In eleven cases the results were good, since the offensive odor and the crusts completely disappeared and the nasal mucosa became almost normal. The improvement has continued for a few months, to date. In ten patients the improvement was quite satisfactory. The results were less satisfactory in six cases; there was a marked improvement of the subjective signs and disappearance of the odor but other objective signs persisted. The author points out that the favorable effect of the ultraviolet rays was manifest also on the general condition.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: 1-172 (Jan. 3) 1931

Buerger's Disease. A. A. Hijmans van den Bergh.—p. 6.
Acholuric Jaundice as an Acute Manifestation. C. D. de Langen. —p. 17.
*Treatment of Pernicious Anemia with Dried Pig's Stomach. I. Snapper and J. D. G. du Preez.—p. 29.
Rôle of Heredity in Multiple Births. J. Sanders.—p. 49.

Treatment of Pernicious Anemia with Dried Pig's Stomach.—Snapper and du Preez report that, in nine out of eleven cases of pernicious anemia, dried pig's stomach had a good effect but not better than liver. The two other cases proved especially resistant; also to the administration of liver preparations, and only a combination of pig's stomach and liver finally effected a cure. In most cases, not less than five or six doses of pig's stomach of one tablespoonful each should be given in twenty-four hours.

Hospitalstidende, Copenhagen

73: 1091-1118 (Nov. 13) 1930

*Blood Sugar Curve in Different Forms of Jaundice. E. Meulengracht. —p. 1091.
*Cases of Hyperchromatic Anemia Without Gastric Achylia in Psychotic Conditions. S. A. Holbøll.—p. 1108.

Blood Sugar Curve in Different Forms of Jaundice.—In patients with acute and with chronic hepatitis, Meulengracht found that after the oral administration of dextrose the course of the blood sugar curve, except in cases with complications or with nausea or rise of temperature, was characterized by a certain tendency to low values for the fasting blood sugar, a normal average rise, and a pronounced consecutive hypoglycemic phase which often brought the blood sugar down to marked hypoglycemic values. In cases of cancer with stricture of the bile ducts, including cancer of the head of the pancreas, the blood sugar curve after the oral administration of dextrose was in most cases irregular, frequently peculiarly low, sometimes with slow rise and without a fall within three and a half hours. No tendency to hypoglycemic values was noted.

Hyperchromatic Anemia Without Gastric Achylia in Psychotic Conditions.—In the three cases reported by Holbøll, there were long-continued nervous and hysterical symptoms, in two cases, pronounced, together with an anemia characterized by an increased color index. Pernicious anemia was excluded. Numerous examinations failed to establish the presence of any pathologic condition known to be accompanied by anemia of the hyperchromatic type. The occurrence of hyperchromatic anemias, as in these cases, is so rare that the simultaneous appearance in the three instances of marked psychic disturbances can hardly be regarded as merely a coincidence. The cases show that, in apparently purely functional disorders, changes in the blood picture take place, pointing to unknown organic changes which may perhaps be the primary cause of the blood changes and the psychic disturbances.

73: 1129-1156 (Nov. 27) 1930

*Attempts at Hyperventilation by Inhalation of Carbon Dioxide and Oxygen in Patients with Spasms. M. Fog and M. Schmidt.—p. 1134.

Hyperventilation by Inhalation of Carbon Dioxide and Oxygen in Patients with Spasms.—Fog and Schmidt subjected thirty-four patients with epilepsy, doubtful epilepsy and hysterical convulsions to seventy-one hyperventilation tests. By simple hyperventilation and by hyperventilation with oxygen, epileptic attacks were produced in seven patients (about 22 per cent). In hyperventilation by carbon dioxide-oxygen, epileptic phenomena occurred in only one case. By simple hyperventilation and by hyperventilation with oxygen, more or less marked tetanic phenomena were produced in most of the patients; in the tests with carbon dioxide-oxygen they were absent. The lowered oxygen suspension in the tissues during simple hyperventilation is suggested as a possible explanation of the origin of epileptic attacks produced by hyperventilation.

Ugeskrift for Læger, Copenhagen

92: 1221-1234 (Dec. 25) 1930

*Symptoms Leading to Early Diagnosis of Tuberculosis in Childhood. C. Friderichsen.—p. 1221.
Tuberculosis in Egedes Minde District, North Greenland. S. K. Svendsen.—p. 1225.
Congenital, Frequent Anomaly of Penis in Greenland. P. Børresen. —p. 1227.

Early Diagnosis of Tuberculosis in Childhood.—Friderichsen says that the initial fever is the first clinical sign of tuberculosis in the anteallergic stage in the child and emphasizes that in 98 per cent of the cases of erythema nodosum in young children this condition is one of the first clinically certain signs of the organism's reaction to a beginning tuberculous infection.

93: 1-26 (Jan. 1) 1931

Remarks on Modern Treatment of Syphilis. C. E. Jensen.—p. 1.
*Insulin Intoxication and Babinski's Reflex. B. Andersen.—p. 5.
*Case of Acute Miliary Tuberculosis with Formation of Tuberculoma Together with Encephalitic Changes. K. Germer.—p. 6.

Insulin Intoxication and Babinski's Reflex.—Andersen reports a case of insulin intoxication leading to coma, with pronounced hypertonia of the musculature of the extremities, marked perspiration, and a typical bilateral Babinski reflex. Normal plantar reflex was seen after the administration of dextrose. He cites six other cases of insulin intoxication with coma and a demonstrable Babinski reflex during coma.

Acute Miliary Tuberculosis with Encephalitic Changes.—In Germer's patient, a girl, aged 12, with miliary tuberculosis, neurologic symptoms set in three weeks before death. Necropsy disclosed changes in the central convolution of the cerebrum which macroscopically and microscopically indicated a cerebral tuberculoma; this diagnosis was confirmed by the demonstration of typical tubercle bacilli in the pathologically changed tissue. The meningeal changes were both macroscopically and microscopically of typical tuberculous nature. The less marked, diffuse microscopic changes in the brain tissue were regarded as signs of a beginning encephalitis, presumably of tuberculous nature.

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